

TCP/11/16(303)

Planning Application 13/01905/FLL - Erection of two wind turbines on land 1300 metres south east of Tombuie Cottage, Bolfracks, Amulree

PLANNING DECISION NOTICE *(included in applicant's submission, see pages 41-44)*

REPORT OF HANDLING

REFERENCE DOCUMENT

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DELEGATED REPORT

Ref No	13/01905/FLL
Ward No	N4- Highland

PROPOSAL: Erection of two wind turbines

LOCATION: Land 1300 metres South East of Tombuie Cottage,
Bolfracks, Amulree

APPLICANT: Bolfracks Estate

RECOMMENDATION: REFUSE THE APPLICATION

SITE INSPECTION: Various Visits

OFFICERS REPORT:

Full planning consent is sought for the erection of two wind turbines with a blade tip height of 45m, and a 30m hub at Hill Park on the Bolfracks Estate approximately 2.7km to the south east of Kenmore. The proposed turbines sit to the east of the public road between Kenmore and Amulree within an area of established woodland in an upland valley landscape where the majority of existing uses involve forestry and agriculture. The applicant's submission states that the woodland where the turbines are proposed is a younger part of the plantation and some felling is proposed to accommodate the turbines. The woodland is designated as Ancient Woodland.

The site does not fall within or upon any designated sites of ecological, historical or archaeological interest (other than the Ancient Woodland), although the Taymouth Castle Historic Garden and Designed Landscape is located approximately 1.4km to the north west. It should also be noted that the approved Beaulieu-Denny Overhead Line (OHL) is located 3.8km to the east with the approved 14 turbine Calliachar Wind Farm (now operational) sitting just beyond the OHL. An application for a 7 turbine extension of Calliachar is currently under consideration. The 68 turbine, operational Griffin Windfarm sits further east, approximately 10km from the application site. There are also two identical approved turbines 1.6km to the south west of the site which are yet to be constructed. The landscape in this location is therefore clearly already affected by wind and energy development.

The proposed turbines are 45m to blade tip, 30m to hub and with a rotor sweep of 30m. The proposal also involve the erection of a new access track which will form north and south off an existing track to serve each turbine. A substation is also proposed between the two turbines which will be 2.7m x 2.7m and 2.7m in height.

Procedural

Due to the development falling within schedule 2 of the Environmental Impact Assessment (Scotland) Regulations 1999 under Part 3 Energy Industry the Planning Authority took account of the criteria contained within the EIA Regulations and adopted a screening opinion that an EIA was not required (12/01916/SCRN). This Screening Opinion should not be taken as implying that the planning authority considers this to be an acceptable development but that the environmental impacts for the scale of the development can be considered adequately in the assessment of the Planning Application.

Submission

Although an EIA was not required, the applicant has nevertheless lodged a detailed LVIA assessment which includes a series of ZTVs, wirelines and photomontages to help demonstrate the likely impact that the turbine will have on the visual amenity of the area and on the general landscape of the area - both in isolation and in combination with other consented schemes.

Policy

Sections 25 and 37(2) of the Town and Country Planning (Scotland) Act 1997 (as amended by the 2006 act) requires the determination of the planning application to be made in accordance with the provisions of the Development Plan, unless other material considerations indicate otherwise. The Development Plan for the area comprises the approved TAYPlan 2012 and the adopted Highland Area Local Plan 2000.

In terms of the Tay Plan, Policy 6 is directly applicable as are policies 1, 2, 3, 4, 11, 14, 19, 25 and 28 of the Highland Area Local Plan.

Policy 6 of the Tay Plan states that Local Development Plans and development proposals should ensure that all areas of search, allocated sites, routes and decisions on development proposals for energy and waste/resource management infrastructure have been fully justified.

Policies 1, 2, 3 and 4 of the Local Plan all seek to ensure that all new developments within the landward area have a suitable landscape framework and will not have an adverse impact on the character of the existing landscape. Policy 11 of the Local Plan offers encouragement (in principle) for renewable projects, providing that the development does not impact on the landscape value of an area, will not adversely affect sites of archaeological or nature conservation interests, and will not have a significant impact on residential amenity.

In terms of other material considerations, this principally includes an assessment against national planning guidance in the form of the Scottish Planning Policy and consideration of the TLCA (Tayside Landscape Character Assessment), Perth & Kinross Council's Supplementary Planning Guidance

(SPG) for Wind Energy and Policy ER1: Renewable and Low Carbon Energy Generation identified in Proposed Local Development Plan 2012.

Accordingly, based on the above, I consider the key determining issues for this proposal to be a) whether or not the proposal (by virtue of its siting and height) will have an unacceptable impact on the landscape / visual amenity of the area, b) whether or not the proposal is compatible with the surrounding land uses, c) whether or not there will be an adverse impact on any protected species and / or habitats and d) whether or not the proposal will adversely affect any cultural heritage assets, bearing in mind the provisions of the Development Plan and other material considerations.

I shall assess these issues in turn starting with the landscape and visual impact.

Landscape and Visual Impact

Landscape

In terms of renewable developments, Policy 11 of the Local Plan outlines that renewable energy developments should not result in an unacceptable intrusion on the intrinsic landscape quality of the area and not result in a loss of the amenity to neighbouring occupiers.

In assessing the potential impact on the landscape character of the area, the Tayside Landscape Character Assessment 1999 (TLCA) is a material consideration.

The TLCA defines the site as being located within an area that is characterised as a Highland Summits and Plateaux landscape character type. This landscape type includes areas of upland separating the principal glens to the north of the Highland Boundary Fault. The area includes extensive areas of upland plateau. The TLCA suggests that tall structures including masts and turbines should be discouraged because they are likely to have a harsh impact on the undeveloped character of the character type. It should be noted, however, that the landscape character type has changed extensively since the publication of this document with the wind farms and OHL referred to above being approved.

A key consideration in the assessment of this application is whether the landscape is capable of absorbing the development.

In this case the turbines are located on a north facing hill on rising land above the Loch Tay valley. The capacity of the landscape at this location is limited given the existing wind energy development in the locality. The turbines would add additional vertical structures in the landscape further down the hill and the majority of existing wind development on these hills sits back and away from the lower valleys, particularly Griffin and Calliacher which sit on the ridge lines above the site when viewed from the north. I do have concerns that the proposed turbines will be highly conspicuous particularly when viewed

from higher ground at the edge of the valley shrinking the landscape due to its horizontal nature and that they would have a cumulative impact that will be assessed within the report.

Zone of Theoretical Visibility (ZTV)

The applicant's submission suggests a degree of visibility of the turbines to the north and extending along the north side of the Loch Tay Valley to the west. Therefore the turbines will mainly be visible from the south facing hills on the opposite side of the Loch Tay Valley extending to the south west and north east. There is also some visibility from the south, particularly in areas close to the site and within an area to west of the site.

Viewpoints(VP)/Photomontage

A total of 14 viewpoints were selected and discussed with the Planning Authority to assess the landscape and visual impact. Of these viewpoints (VP) VP3, 5 and 13 show that the turbines are not visible due to intervening landscape features although part of the blade of one turbine is visible from VP3 but not to any significant extent.

VP1 is taken from Schiehallion and shows that the turbines will be clearly visible from this location with Calliachar clearly visible to the left of the viewpoint and the approved turbines at Urlar visible to the right. The turbines are back clothed from this viewpoint by the rising hills to the south and therefore their visual impact in isolation from this important viewpoint is not considered to be significant.

VP2 is taken from Ben Lawers and has similar traits to VP1 above. The turbines will be back clothed from this VP by the rising hills and therefore the visual impact in isolation is not considered to be significant.

VP4 is taken from Drummond Hill, above and to the north of Kenmore. This shows the turbines are clearly visible in views including the conservation village and numerous listed buildings. The blades of turbine 1 break the skyline when viewed from here. It is noted that the author of the LVIA considers the impact on this view not to be significant. I do not share this view. I am concerned that the turbines will have a detrimental impact on this important view of Kenmore and introduce turbines to an important view where currently none exist. The view is currently focused down into the valley floor toward the village whereas the erection of turbines would draw the viewer's eye towards the skyline and to the moving structures. The existing woodland does provide some context for the turbines but this is not sufficient to mitigate my concerns in this regard.

VP6 is taken adjacent to the B846 public road at Coshieville to the north of the site. Whilst the turbines sit above the skyline when seen from this viewpoint it is noted that this view would only be apparent at two isolated points along the road. I am satisfied with the LVIA's conclusion on this viewpoint that the

turbines represent "a minor indistinct element in the general context and within fleeting peripheral views."

VP7 is taken from the Rob Roy Way to the south of the site. This shows that the turbines will be clearly visible, however the existing woodland will help to provide some containment to the turbines although some of this is due to be felled. The LVIA states that the turbines sit away from the extended views towards Schielhallion which is a more distinctive highland summit.

VP8 is taken from the footpath to the north of Fortingall on the fringes of the Glen Lyon National Scenic Area (NSA). From here the turbines appear below the skyline with no conflict or overlap with other skylines. In isolation I have no concerns with the turbines when viewed from here.

VP9 from Meall Greigh to the west show the turbines on the slope below Griffin and Calliacher. A dramatic descending panorama is visible from this viewpoint. Again I have no concerns regarding the turbines in isolation from this viewpoint.

VP10 is taken from the immediate north of the site in Glen Quaich and represents the views of motorists on the road. There is a slight dip in the road where the turbines are located and as such only the blade tips of the turbines will be apparent when travelling up the road. I agree with the LVIA's view that the impact on this view would be negligible, however the turbines would extend the sequential views of wind development further north down the hill.

VP11 is taken from Beinn Ghlas, a summit of the Ben Lawers massif. This demonstrates a similar view to that provided from Ben Lawers. The turbines sit below the skyline and away from the valley when viewed from here as such I do not consider the impact to be significant in isolation from here.

VP12 is taken from Meall Tairneachan, a summit to the north on the edges of the Loch Tummel NSA. I have no concerns regarding the impact from this viewpoint and agree with the conclusion reached in the LVIA.

VP14 is taken from Meal Nam, an elevated position to the south of the application site. The turbines will be visible across the elevated sweeping moorland plateau. The turbines sit on a distant ridge line with the hubs and blades above this skyline. However, there is further sweeping moorland behind which provides backclothing. I am satisfied the impact of the turbines in isolation from this viewpoint are minimal.

Cumulative Impact

Cumulative impact has been addressed by the submission of cumulative ZTVs and viewpoints which identify the areas of visibility of the proposed turbines and other approved small scale wind developments together with operational Calliacher and Griffin Wind Farms to the east.

It is evident that the host landscape has been substantially modified by existing wind energy development and pylon structures. Part of this assessment is to ensure that this new wind energy development does not worsen landscape character when considered cumulatively with existing developments.

From VP1 there is a clear and distinct separation between Calliacher wind farm and the two approved turbines at Urlar. I consider this separation to be important and ensures the Urlar turbines are seen as a separate development isolated from the larger turbine group. The proposed turbines at Bolfracks sit directly between Calliacher and Urlar and in my opinion results in an extension of wind development across the moorland landscape which is currently not the case given Urlar's remoteness from Calliacher. It will also serve to draw the viewers eye across the stretch of landscape between Urlar and Calliacher which, given the existing gap, is currently not the case. The same issue is apparent in VP8. From these views there are currently two separate focal points on the landscape whereas the proposal introduces a further focal point on the landscape and serves to confuse the overall image.

From VP2 at Ben Lawers, Griffin and Calliacher are clearly visible on the far extent of this view close to the ridge line and sit as a horizontal linear development along the ridge. The proposed turbines sit lower in the valley at a similar level to the approved turbines at Urlar. In my view the turbines, together with those at Urlar serve to draw the viewers eye down the valley to the detriment of landscape character, this is similar in VP9.

Whilst I note that Urlar has been approved I have concerns regarding the impact these turbines will have and feel this proposal at Bolfracks will only serve to exacerbate those concerns and therefore any approval of this application would only be of further detriment.

From VP9 when travelling south bound on the Glen Quaich road the turbines will result in an extension of sequential views of wind turbines to the north down the road. This will mean a driver will experience the Griffin and Calliacher wind farms and then the proposed turbines, extending the experience of wind development along the road to the detriment of visual amenity.

I do not share the view contained in the applicant's submission which states that the turbines only add a modest influence to the existing established wind turbine landscape. The proposed turbines extend the existing concentration of turbines further down the valley to an area where none currently exist. Furthermore the turbines will fill a gap between existing and approved wind development from certain viewpoints which currently benefit from a degree of separation.

Having assessed the proposals and visited the site I consider that the development of two turbines at this location will have a significant visual impact on the wider landscape area both in isolation and cumulatively.

Compatibility with Existing Land Uses

In regards to compatibility with existing land uses, Policy 2 of the local plan seeks to ensure that all new developments are compatible with existing land uses. I have no concerns regarding the impact that the turbine will have on the commercial activities of the land. Furthermore, given properties in the area are generally located further down the valley, the existing topography and woodland cover would limit any significant effects on residential amenity.

Protected Species / Habitats

The submission includes a Protected Species Assessment which considers the impact on mountain hare, red squirrels, otter, pine marten and bats. It goes on to identify suitable mitigation measures in relation to the felling of woodland and that further pre construction surveys will be required. A license from SNH would also be required in relation to red squirrels as the proposal will potentially disturb their habitat. Conditions could be attached to ensure appropriate mitigation measures are put in place. Furthermore the applicant's agent has submitted an email dated 9 December 2013 to which the Bio Diversity Officer responded (10 December 2013) which outlines further mitigation measures in relation to nesting birds, swan and raptors which could also be included as conditions.

Ancient Woodland

The area of woodland where the turbines are proposed is designated as Ancient Woodland and some of this requires to be felled to accommodate the turbines. Ancient woodland is an extremely rare habitat in the UK. It should be noted that the Scottish Government has developed a policy on the Control of Woodland Removal which supports the Government's Scottish Forestry Strategy and the associated ambition to see Scotland's woodland resource increase by up to 25% of our land area. This policy does state that woodland removal shall only be allowed where it would achieve significant benefits and a proposal for compensatory planting may form part of this balance. The applicant has indicated that this is a younger part of the woodland plantation but nevertheless it is designated as Ancient Woodland. It is noted that approval of the turbines would result in some overall benefit to the estate in terms of investment. If consent is granted I would expect some compensatory planting to be provided to allow for the creation of habitat for protected species to make up for the loss of ancient woodland. This could be addressed by a suitably worded planning condition.

Impact on the historic environment

The information submitted by the applicant includes schedules of various sites including listed buildings (Taymouth Castle and others) the Historic Garden and Designed Landscape of Taymouth Castle, Kenmore Conservation Area and various Scheduled Ancient Monuments (SAM).

The viewpoints indicate that the turbines will not be readily visible from any of these locations and as such the impact on these historic receptors is not considered to be significant. The Council's Conservation Officer and Historic Scotland have raised no objection.

Perth and Kinross Heritage Trust (PKHT) have been consulted in relation to the potential impact on archaeology and have raised no objection subject to conditions.

Noise

The submission includes a short chapter on noise within the Supporting Environmental Report. The noise chapter is fairly basic without any background measurements and wind shear calculations but this is considered acceptable by Environmental Health as the predicted noise levels at the closest noise sensitive property is 24.75dB.

Noise from wind turbines is assessed in line with ETSU (The Assessment and Rating of Noise from Wind Farms (ETSU-R-97) and sets a lower limit of L A90 35-40dB at noise sensitive properties. Since the noise levels predicted for this development are lower than the level set by ETSU, there is no need for baseline surveys.

Planning Advice Note (PAN) 45 on renewable energy technologies suggests the use of a simplified noise condition for single turbines or wind farms with a large separation distance and this condition alone would offer sufficient protection of amenity. PAN 45 recommends a condition, that the noise be limited to 35dB as an LA90 at the nearest neighbouring property up to a wind speed of 10 m/s.

Environmental Health have indicated their support for the proposal subject to conditions.

Shadow Flicker

With regards to shadow flicker, UK Government Reports such as 'Onshore Wind Energy Planning Conditions Guidance Note' from BERR state that only properties within a 10 rotor diameter need be considered. The rotor diameter of the turbines is 30m and as there are no properties within 300metres of the application site, I do not foresee any issues with shadow flicker.

Access

Access is proposed from the Glen Quaich public road between Kenmore and Amulree and an existing track is to be used with new accesses formed off this track. Transport Planning have offered no objection subject to conditions relating to the specification of the access onto the public road and the submission of a construction traffic management plan.

Economic Benefits

There are a number of ways in which a wind turbine can bring jobs to a local community. Firstly, the construction stage itself requires a range of workers to construct and assemble the turbine on site and connect to the national grid. In addition, for the duration of the construction this short term work supports other local businesses. Secondly, there is the on-going maintenance of the turbine which contributes to the predicted 130,000 jobs in the renewables sector in Scotland by 2020.

The submission states that approval of the turbines, together with the Government's Feed-in Tariff Scheme (FiTS) would deliver a sustained and guaranteed income to the estate for a fixed term enabling planned and programmed improvements. This would include physical enhancement to the upland area, habitat enhancement and footpath upgrades. Furthermore it would provide carbon reductions for the estate.

In addition to the benefits to the environment the proposed renewable energy project will bring it is proposed that the electricity generated will be exported fully onto the grid and that the estate shall benefit from the Feed-In-Tariff mechanism currently in place. In conclusion the income generated would help improve the existing estate.

Aviation Lighting

The height and location of the proposed wind turbine has been assessed by the MOD and NATS and they have advised that they do not object to the proposed turbine. They have however requested that if planning permission is granted the following information is provided to the MOD:

- the date construction starts and ends;
- the maximum height of construction equipment;
- the latitude and longitude of every turbine.

Conclusion

The principle of renewable energy is broadly supported by the Scottish Government through its planning policies and guidance and through the development plan. However, these developments should be sited so that they do not have any adverse impact on the landscape or compromise the interest of other land users. Whilst I note that the approval of these turbines will contribute to the Scottish Government's renewable energy targets and will be of benefit to the wider estate in terms of improvements to the infrastructure, together with other physical and habitat improvements I am not convinced that these benefits outweigh the concerns in regard to visual and landscape impact.

It is considered that this proposal by virtue of its visual and landscape impact i both in isolation and cumulatively would have an adverse effect on the landscape character and visual amenity of the area.

PLANNING POLICY

The Scottish Government expresses its planning policies through The National Planning Framework 1 & 2, the Scottish Planning Policy (SPP), Planning Advice Notes (PAN), Designing Places, Designing Streets, and a series of Circulars.

The Scottish Planning Policy 2010

This SPP is a statement of Scottish Government policy on land use planning and contains:

- the Scottish Government's view of the purpose of planning,
- the core principles for the operation of the system and the objectives for key parts of the system,
- statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006,
- concise subject planning policies, including the implications for development planning and development management, and
- the Scottish Government's expectations of the intended outcomes of the planning system.

Of relevance to this application are,

1. Paragraphs 182-186 which relate to renewable energy
2. Paragraphs 92-97 which relates to rural development

PAN - 1/2011: Planning & Noise

This Planning Advice Note (PAN) provides advice on the role of the planning system in helping to prevent and limit the adverse effects of noise. It supersedes Circular 10/1999 Planning and Noise and PAN 56 Planning and Noise. Information and advice on noise impact assessment (NIA) methods is provided in the associated Technical Advice Note. It includes details of the legislation, technical standards and codes of practice for specific noise issues.

Onshore wind turbines - 2012

Provides specific topic guidance to Planning Authorities from Scottish Government.

The topic guidance includes encouragement to planning authorities to:

- development spatial strategies for wind farms;

- ensure that Development Plan Policy provide clear guidance for design, location, impacts on scale and character of landscape; and the assessment of cumulative effects.
- the involvement of key consultees including SNH in the application determination process;
- direct the decision maker to published best practice guidance from SNH in relation to visual assessment, siting and design and cumulative impacts.

In relation to any assessment of cumulative impacts it is advised that:

In areas approaching their carrying capacity the assessment of cumulative effects is likely to become more pertinent in considering new wind turbines, either as stand alone groups or extensions to existing wind farms. In other cases, where proposals are being considered in more remote places, the threshold of cumulative impacts is likely to be lower, although there may be other planning considerations.

In assessing cumulative landscape and visual impacts, the scale and pattern of the turbines plus the tracks, power lines and ancillary development will be relevant considerations. It will also be necessary to consider the significance of the landscape and the views, proximity and inter-visibility and the sensitivity of visual receptors.

DEVELOPMENT PLAN

The Development Plan for the area comprises the approved TAYPlan June 2012 and the adopted Highland Area Local Plan 2000

TAYPlan June 2012

The vision set out in the TAYplan states that:

"By 2032 the TAYplan region will be sustainable, more attractive, competitive and vibrant without creating an unacceptable burden on our planet. The quality of life will make it a place of first choice, where more people choose to live, work and visit and where businesses choose to invest and create jobs."

Policy 2: Shaping Better Quality Places

Seeks to ensure that climate change resilience is built into the natural and built environment, integrate new development with existing community infrastructure, ensure the integration of transport and land uses, ensure that waste management solutions are incorporated into development and ensure that high resource efficiency and low/zero carbon energy generation technologies are incorporated with development to reduce carbon emissions and energy consumption.

Policy 6: Energy and Waste/Resource Management Infrastructure

- a) Local Development Plans should identify areas that are suitable for different forms of renewable heat and electricity infrastructure and for waste/resource management infrastructure or criteria to support this; including, where appropriate, land for process industries (e.g. the co-location/proximity of surplus heat producers with heat users).
- b) Beyond community or small scale facilities waste/resource management infrastructure is most likely to be focussed within or close to the Dundee and/or Perth Core Areas (identified in Policy 1).
- c) Local Development Plans and development proposals should ensure that all areas of search, allocated sites, routes and decisions on development proposals for energy and waste/resource management infrastructure have been justified, at a minimum, on the basis of these considerations:
 - The specific land take requirements associated with the infrastructure technology and associated statutory safety exclusion zones where appropriate;
 - Waste/resource management proposals are justified against the Scottish Government's Zero Waste Plan and support the delivery of the waste/resource management hierarchy;
 - Proximity of resources (e.g. woodland, wind or waste material); and to users/customers, grid connections and distribution networks for the heat, power or physical materials and waste products, where appropriate;
 - Anticipated effects of construction and operation on air quality, emissions, noise, odour, surface and ground water pollution, drainage, waste disposal, radar installations and flight paths, and, of nuisance impacts on of-site properties;
 - Sensitivity of landscapes (informed by landscape character assessments and other work), the water environment, biodiversity, geo-diversity, habitats, tourism, recreational access and listed/scheduled buildings and structures;
 - Impacts of associated new grid connections and distribution or access infrastructure;
 - Cumulative impacts of the scale and massing of multiple developments, including existing infrastructure;
 - Impacts upon neighbouring planning authorities (both within and outwith TAYplan); and,
 - Consistency with the National Planning Framework and its Action Programme.

Highland Area Local Plan 2000

Within the Local Plan the site lies within the landward area, where the following policies are directly applicable.

Policy 1 Highland Sustainable Development

The Council will seek to ensure, where possible, that development within the Plan area is carried out in a manner in keeping with the goal of sustainable development. Where development is considered to be incompatible with the pursuit of sustainable development, but has other benefits to the area which outweigh this issue, the developer will be required to take whatever mitigation measures are deemed both practical and necessary to minimise any adverse impact. The following principles will be used as guidelines in assessing whether projects pursue a commitment to sustainable development:

- (a) The consumption of non-renewable resources should be at levels that do not restrict the options for future generations;
- (b) Renewable resources should be used at rates that allow their natural replenishment;
- (c) The quality of the natural environment should be maintained or improved;
- (d) Where there is great complexity or there are unclear effects of development on the environment, the precautionary principle should be applied;
- (e) The costs and benefits (material and non-material) of any development should be equitably distributed;
- (f) Biodiversity is conserved;
- (g) The production of all types of waste should be minimised thereby minimising levels of pollution;
- (h) New development should meet local needs and enhance access to employment, facilities, services and goods.

Policy 2 Development Criteria

All developments will also be judged against the following criteria:

- (a) The sites should have a landscape framework capable of absorbing or, if necessary, screening the development and where required opportunities for landscape enhancement will be sought;
- (b) In the case of built development, regard should be had to the scale, form, colour, and density of existing development within the locality;
- (c) The development should be compatible with its surroundings in land use terms and should not result in a significant loss of amenity to the local community;

- (d) The road network should be capable of absorbing the additional traffic generated by the development and a satisfactory access onto that network provided;
- (e) Where applicable, there should be sufficient spare capacity in drainage, water and education services to cater for the new development;
- (f) The site should be large enough to accommodate the development satisfactorily in site planning terms;
- (g) Buildings and layouts of new developments should be designed so as to be energy efficient;
- (h) Built developments should where possible be built within those settlements that are the subject of inset maps.

Policy 3 Highland Landscape

Development proposals should seek to conserve landscape features and sense of local identity, and strengthen and enhance landscape character. The Council will assess development that is viewed as having a significant landscape impact against the principles of the Tayside Landscape Character Assessment produced by Scottish Natural Heritage

Policy 11 Highland Renewable Energy

The Council will encourage, in appropriate locations, renewable energy projects. Such developments, including ancillary transmission lines and access roads, will be assessed against the following criteria:

- (a) The development will not have a significant detrimental effect on sites recognised by designation at a national, regional or local level, of nature conservation interest or sites of archaeological interest;
- (b) The development will not result in an unacceptable intrusion into the landscape character of the area;
- (c) The development will not result in an unacceptable loss of amenity to neighbouring occupiers by reasons of noise emission, visual dominance, electromagnetic disturbance or reflected light.

Developers will be required to enter into an agreement for the removal of the development and the restoration of the site following the completion of the development's useful life.

Policy 14 Strathearn Natura 2000 sites

The Council will not normally support development which would have an adverse impact on:

- (i) Sites supporting species mentioned in Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 as amended; and Annex II and IV of the European Community Habitats Directive or Annex I of the European Community Wild Birds Directive
- (ii) Those habitats listed in Annex I of the European Community Habitats Directive

Policy 16 Strathearn Local Wildlife Sites

Development which would affect an area designated as being of local nature conservation or geological interest as identified on the Proposals Map will not normally be permitted except where appropriate assessments have demonstrated to the satisfaction of the Council otherwise.

Policy 18 Designated Landscapes

The Council will oppose developments which would have an adverse impact on National Scenic Areas.

Policy 19 Designated Landscapes

The Council will protect and seek to enhance Historic Gardens and Designed Landscapes

Policy 25 Highland Archaeology

The Council will safeguard the settings and archaeological landscapes associated with Scheduled Ancient Monuments (protected under the Ancient Monuments and Archaeological Areas Act 1979), from potential adverse development.

Note: Further details of the list of Scheduled Ancient Monuments are contained in the Technical Appendix.

Perth and Kinross Council Local Development Plan - Proposed Plan, January 2012

Members will be aware that on the 30 January 2012 the Proposed Plan was published. The adopted Local Plan will eventually be replaced by the Proposed Local Development Plan. The Council's Development Plan Scheme sets out the timescale and stages leading up to adoption. Currently the Proposed Local Development Plan is with Scottish Ministers for ratification with formal adoption expected in early February 2014 and therefore may be formally in the coming weeks. It is therefore a significant material consideration in the determination of this application. The most relevant policies are summarised as follows;

Policy PM1A: Placemaking

Requires all new development to contribute positively to the quality of the built and natural environment. Design and landscaping will be key requirements of any new development proposal

Policy CF2: Public Access

Development proposals that would have an adverse impact upon any (proposed) core path, asserted right of way or other well used route, or that would otherwise unreasonably affect public access rights will be refused, unless those impacts are adequately addressed in the plans and suitable alternative provision is made.

Policy HE1A: Scheduled Monuments

Identifies a presumption against development which would have an adverse effect on the integrity of a Scheduled Ancient Monument and its setting.

Policy HE1B: Non-Designated Archaeology

Identifies that the Council will seek to protect areas or sites of known archaeological interest and their settings.

Policy HE2 Listed Buildings

The appropriateness of layout design, scale and siting of any development which affects a listed building or its setting will be carefully considered by the Council.

Policy HE4 Gardens and Designed Landscapes

The Council will seek to protect and enhance the integrity of those sites included on the current Inventory of Gardens and Designed Landscapes.

Policy NE1A International Nature Conservation Sites

Identifies that development which could have a significant effect on a SAC will only be permitted where appropriate assessment is undertaken;

Policy NE1C: Local Designations

Confirms that development which would affect an area designated as being of local nature conservation or geological interest will not normally be permitted, except where the Council as Planning Authority is satisfied that the objectives of designation and the overall integrity of the designated area would not be compromised and/or any locally significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social and economic benefits.

Policy NE1D: European Protected Species

Identifies that planning permission will not be granted where development would be likely to adversely affect a European Protected species.

Policy NE3: Biodiversity

Identifies that the Council will seek to protect and enhance all wildlife and wildlife habitats. Development may be required to demonstrate that all adverse effects on species and habitats have been avoided where possible.

Policy NE4: Green Infrastructure

Provides support for the development that will contribute to the creation, protection, enhancement and management of green infrastructure.

Policy ER1A: New Proposals

Proposals for the utilisation, distribution and development of renewable and low carbon sources of energy, including large-scale freestanding installations, will be supported where they are well related to the resources that are needed for their operation. In assessing such proposals, the following factors will be considered:

- a. The individual or cumulative effects on biodiversity, landscape character, visual integrity, the historic environment, cultural heritage, tranquil qualities, wildness qualities, water resources and the residential amenity of the surrounding area.
- b. The contribution of the proposed development proposed meeting carbon reduction targets.
- c. The connection to the electricity distribution or transmission system.
- d. The transport implications, and in particular the scale and nature of traffic likely to be generated, and its implications for site access, road capacity, road safety, and the environment generally.
- e. The hill tracks and borrow pits associated with any development.
- f. The effects on carbon rich soils.
- g. Any positive or negative effects they may have on the local or Perth and Kinross economy either individually or cumulatively.
- h. The reasons why the favoured choice over other alternative sites has been selected.

Policy ER6: Managing future Landscape change to conserve and enhance the diversity and quality of the area's landscape

Requires new development proposals to be compatible with the distinctive characteristics and features of the Perth & Kinross Landscape. New development proposals will be required to conserve and enhance the landscape qualities of Perth and Kinross. Identifies that the Tayside Landscape Character Assessment will be used for assessing development proposals along with other material considerations.

Policy EP8: Noise Pollution

Identifies a presumption against the siting of development proposals which will generate high levels of noise in the locality of existing noise sensitive uses. Identifies that conditions will be used to limit noise for developments where design and siting alone would deliver insufficient mitigation.

OTHER POLICIES

Supplementary Planning Guidance for Wind Energy Proposals in Perth and Kinross, Approved 18th May 2005

The purpose of this policy and guidance note is to enable the wind energy industry to expand, but not at the cost of the natural and built environment.

Landscape Study to Inform Planning for Wind Energy, Finalised Report November 2010

The purpose of this study is to assist Perth and Kinross Council in the preparation of policy guidance relating to planning for wind energy developments, in accordance with Scottish Planning Policy (2010).

Tayside Landscape Character Assessment 1999 (TLCA)

This document provides guidance on the various different landscape types throughout the Tayside region and also assists in identifying whether a development can be accommodated with certain landscapes.

Scottish Natural Heritage guidance documents

The following documents are also relevant to the assessment of this wind energy project. 'Strategic locational guidance for onshore wind farms in respect of Natural Heritage' and 'Natural Heritage assessment of small scale wind energy projects which do not require formal Environmental Impact Assessment (EIA).

SITE HISTORY

12/01916/SCRN Erection of 2 wind turbines DATE

CONSULTATIONS/COMMENTS

Bio Diversity Officer	No objection subject to conditions
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Transport Planning	No objection subject to conditions
--------------------	------------------------------------

Environmental Health	Conditions recommended regarding noise and private water
Ministry Of Defence	No objection
Scottish Natural Heritage	No objection
Community Council	No comments received
Frances Berry/Jane Pritchard - Access Officers	Condition recommended
Perth And Kinross Area Archaeologist	No objection subject to condition
Historic Scotland	No objection

TARGET DATE: 21 January 2014

REPRESENTATIONS RECEIVED: **Yes**

Number Received: **Two**

Summary of issues raised by objectors:

Impact on Natural Heritage/Protected Species
Wider issues with regards to policy not directly related to this specific proposal

Response to issues raised by objectors:

The issues are addressed in the following sections of the report

Effect on Protected Species - Protected Species / Habitats

Damage to Health and wider issues with regards to government policy in relation to wind energy not directly related to this specific proposal and which have therefore not been addressed in detail

Additional Statements Received:	Not required
Environment Statement	Not required
Screening Opinion	Yes
Environmental Impact Assessment	Not required
Appropriate Assessment	Not required
Design Statement or Design and Access Statement	Not required
Report on Impact or Potential Impact eg Flood Risk Assessment	Not required
Legal Agreement Required:	Not required
Summary of terms	Not required
Direction by Scottish Ministers	Not required

Reasons for Refusal:-

- 1 Due to the siting, size of turbines, prominence and visual association with existing and approved windfarms/turbines within the locality the proposals would have a major adverse cumulative impact on existing landscape character and visual amenity. The Council is not satisfied that the social and economic benefits of the proposed turbines would outweigh the significant adverse effects on local environmental quality. Accordingly the proposal is contrary to Policy 6 of the Tayplan 2012 as well as policies 1, 2, 3 and 11 of the Highland Area Local Plan 2000 and policies PM1A, ER1A and ER6 of the Proposed Local Development Plan. The proposal is also contrary to Scottish Government Guidance in the form of Scottish Planning Policy 2010.
- 2 The proposed scale of the turbines cannot be absorbed by the existing landscape framework surrounding the site. The proposal will result in the upper hub and blades breaching the skyline from key viewpoints including the Drummond Hill which would contravene the recommendations contained within the Tayside Landscape Character Assessment 1999 (TLCA). This would result in an adverse landscape impact which cannot be economically or socially justified. Accordingly

the proposal is contrary to Policy 6 of the Tayplan 2012 as well as policies 1, 2, 3 and 11 of the Highland Area Local Plan 2000 and policies PM1A, ER1A and ER6 of the Proposed Local Development Plan. The proposal is also contrary to Scottish Government Guidance in the form of Scottish Planning Policy 2010.

Justification

- 1 The proposal is not in accordance with the Development Plan and there are no material reasons which justify departing from the Development Plan

Notes

None

Bolfracks Estate Wind Energy

Hill Park Wind Turbines

Environmental Report

Volume 1 of 2



Document Issue Record

Client:	Bolfracks Estate	
Contact Details:	Bolfracks Estate	
	Name	Title
Prepared by:	Sanjay Chundoo	Project Manager
Prepared by:	Garry Dimeck	Senior Project Manager
Approved by:	Mark Jennison	Project Director
Date of issue:	02 October 2013	

Issue	Date	Purpose of Issue & Amendment
1	14 July 2013	Draft for internal review
2	30 Sept 2013	Draft for client review
3	02 Oct 2013	Final Version for Submission

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Note:

*Figure in Volume 2, separate from text in Volume 1.

** Figure with text in Volume 1 and in Volume 2, separate from text.

1 Introduction

This Environmental & Planning Report (EPR) has been prepared to support a planning application to Perth and Kinross Council (PKC) for the development of two locally owned WTN 250kW wind turbines on land at Hill Park, Bolfracks Estate, near Kenmore. It will set out the technical reasons for the choice of location, the anticipated contribution towards renewable energy targets, and the likely effects on the local economy and environment.

The turbines would have the following dimensions: 45m to blade tip; 30m to hub and with a rotor sweep of 30m.

This EP Report seeks to address the local environmental effects arising from the introduction of two *medium scaled* wind turbines in this location and will also set the Planning context for the consideration of the proposal. The report is not a formal Environmental Statement under the Town and Country Planning (Environmental Impacts)(Scotland) Regulations 2011. Although comprising a Schedule II proposal under those Regulations, a screening opinion was issued by Perth & Kinross Council on the 05 November 2012 confirming that this is not EIA development.

This EP Report makes up Volume 1 of the supporting information for the planning application and should be read in conjunction with the A3 figures in Volume 2.

1.1 Project Background

The two turbines would be sited within land presently used for commercial forestry on the southern edge of the Bolfracks Estate near Kenmore (Figure 1).

Bolfracks Estate is an organic farm estate extending to 4,000 acres and is actively managed in a sustainable way through a commitment to green energy and the environment. Over time sustainable development projects and land management have been commissioned on the estate with extensive areas of land given over to the planting of spruce, larch, birch and native hardwoods and managed for specialist uses. Pine plantation timber is processed into Biomass fuel and fencing material. In addition a successful hydro scheme is in operation on the Estate.

This new wind proposal is an extension of the land owner's commitment to the principle of sustainable land management and also seeks to provide a secure, continuing and sustainable supplementary income to the Estate. This would be realised through the benefits derived from the Government's Feed-in Tariff scheme (FiTS).

The FiTS scheme aims to increase the amount of electricity generated from renewable sources as a vital part of the Government's response to climate change. It provides support to the development of small to medium-scale renewable projects and offers encouragement to small businesses to invest and be part of the 'green' energy revolution.

The proposed turbines at Hill Park would deliver a sustained and guaranteed income to the Bolfracks Estate for a fixed term enabling planned and programmed improvements. Those improvements would include physical enhancement of the upland area, habitat enhancement, mixed species planting to woodland areas and public access improvement through footpath upgrade. In addition the project would deliver important and further reductions to the carbon footprint of the farm and estate

Recent developments in the wind turbine market now offer a financially viable single wind turbine, of 45 m base to blade tip height, with a generating capacity of 250 kW. Installing two of these turbines would optimise the site under the current FiT bandings. There is no intention for the installation of any further wind turbines at this site.

The site is a location where there is a steady and reliable wind resource and offers a suitable opportunity to contribute towards achieving Scotland's targets for the delivery of 100% renewable energy by 2020.

1.2 Project Location

The application site is detailed on the plan at Figure 1 with the turbines located at NGR T1; 280003, 743802, T2; 279843, 743970. The site is located within an upland landscape and agricultural/forestry uses would remain for the majority of the farm/estate. The site boundary encompasses an area of sloping hillside, which mainly consists of coniferous forestry (Hill Park/Lochan Wood). Limited felling to this area would be required for turbine installation and protection of the wind resource, while retaining an element of screening to the north of the turbines. The turbines would be located in a 'young' part of the plantation and the extent of tree removal and age of trees are indicated on the plan included in the Ecology section of this report (Fig 9).

The turbines would be sited at 465m AOD (Turbine 2) and 485m AOD (Turbine 1) at a distance of approximately 250m apart.

The site is in open countryside away from residential properties and positioned on the sloping hillside above and to the south of Loch Tay, at its eastern end. The Landscape within the vicinity of the site is a close intermixing of upland moors, upland fringe pastures and commercial forestry with pastoral farming on valley floors. Minor roads and small settlements are present but are largely restricted to the more sheltered valley landscapes.

The land continues to rise beyond the application site to the south and east culminating in a small ridge (Hill Park itself) 0.5km to the east of the site (560m AOD). Further beyond that the terrain is undulating before rising to 600m AOD at Monadnam Mial; 623m AOD at Meall Odhart & 690m AOD at Meall Dearg. These hills align the western edge of Glen Cochill and the A826 Crieff to Aberfeldy Road.

Several sites across the Estate were considered during the initial site assessment but the site at Hill Park was considered to be the best having regard to average wind speeds, visual impacts and relationship to privately owned properties.

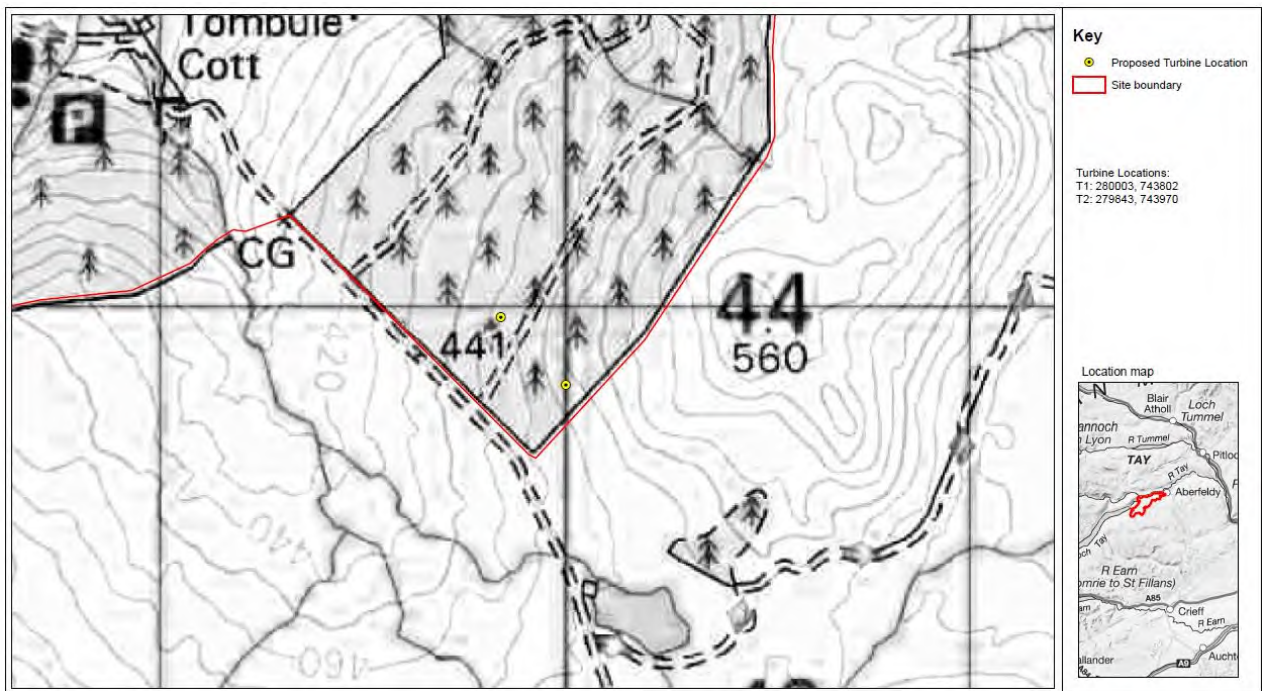


Figure 1: Site Location (Full size version available in Volume 2)

1.3 The Application

Planning permission is sought for:

- Erection of two wind turbines up to 45m in height to blade tip.
- Associated infrastructure including: foundations, access tracks, control hut, cabling and construction-related laydown areas.

These elements are shown in the Project Description diagrams and Site Layout map, which accompany the planning application in the A3 figures, contained in Volume 2.

Planning permission is sought for a period of 25 years, from the first generation of electricity on site; after which time the turbines would be removed and the site thought likely to be restored - although the possibility of replacing the turbines at that time would be separately assessed.

Hill Park would be accessed by construction traffic from the A9, via the A827 through Aberfeldy. From the Aberfeldy- Kenmore Road, private tracks would be taken through the Bolfracks Estate to the Kenmore- Amulree road at Tombuie Cottage. Access from this minor road would utilise the existing forestry track through the Hill Park plantation.

1.4 The Applicant

The applicant is **Bolfracks Estate**, which owns the application land holding at Hill Park.

1.5 Contributors

The Realise Renewables personnel who have been involved in this report are:

- Sanjay Chundoo, Project Manager: GIS mapping, technical constraints.
- Garry Dimeck, Snr Project Manager: Main report, planning review.
- Mark Jennison, Project Director: Overall review.

Other associate personnel who have been previously involved in the wind turbine project are:

- Atmos Consulting: Andy Jones - Landscape and Visual Impact Assessment.
- Scorpa Consultancy Ltd: Dr Ian Hulbert - Ecology and Ornithology assessment.

1.6 Environmental Impact Assessment

A wind project, such as that proposed at Bolfracks Estate is categorised by the Environmental Impact Assessment (Scotland) Regulations 2011 as a Schedule 2 Development, which includes any wind development involving more than two turbines, or where the hub height exceeds 15m. Such a proposal would:

require an EIA if it is likely to have significant environmental effect because of factors such as its nature, size or location.

An EIA Screening Opinion was therefore requested of Perth & Kinross Council by Realise Renewables. In a response dated 5 November 2012 John Russell of the Council's Planning Service confirmed that:

....the proposed development is unlikely to have significant effects on the environment by virtue of factors such as its size, nature and location. I can confirm that the Council holds the view that an Environmental Statement is not required in this instance....

1.7 Scope of Environmental & Planning Report

Even without a formal EIA, it remains necessary as part of this planning application, to consider the potential local environmental and planning impacts arising from the proposal. The appraisal report previously submitted to inform the Screening Opinion had set out a proposed methodology and this EPR report will generally follow the format set out in that document.

The EPR covers the following issues in detail in a manner proportionate and appropriate to this scale of project:

- Site selection and design
- Project description
- Planning policy
- Landscape and visual impacts
- Cultural heritage and archaeology
- Ecology and ornithology
- Hydrology
- Noise
- Shadow flicker
- Aviation, telecommunications, television, existing infrastructure and safety

SNH Guidance, *Assessing the impact of small-scale wind energy proposals on the natural heritage (Feb 2012)* has been followed with the exception of the LVIA. That Guidance does suggest that with this scale of proposal (turbines between 15 and 50m in height) only a basic landscape appraisal would be required. However, in this case, and in response to a specific request from Perth &

Kinross Council, the applicant has commissioned a comprehensive LVIA supported by extensive photomontage and wireline illustrations.

2 Site Selection & Design

2.1 Site Selection

The site at Hill Park has been selected as suitable for wind energy development due to its measured wind resource and proximity to the electricity network. A number of other environmental and technical constraints were also considered during the site selection and project development process (see Figure 1a, Volume 2) and are detailed in the chapter below.

2.2 Micro-Siting

Ancillary developments will include a small control building, crane and hard-standing areas beside the turbine; temporary construction compound, and underground cabling between turbine and control building. Works will also be carried out to ensure access to the turbine site via new sections of track. A 25m micro-siting allowance is sought for all proposed infrastructure features in accordance with the recommendations set out in SNH guidance *Siting and Designing windfarms in the landscape- Version 1 2009*.

2.3 Environmental Appraisal

The design has considered the wind regime; technical and environmental constraints, including likely landscape and visual impacts. Considerations have included:

- **Environmental and cultural heritage:** The proposal is not located within any national or local sites designated for their landscape and cultural heritage importance. In addition, there are no designated sites of ecological importance on the site. The site falls outside of and some way from the schematic indication of core areas of wildland published by Scottish Government in its Main Issues Report on the National Planning Framework in April of this year (Core Area 9 - Upper Almond).
- **Distance from residential buildings:** A key consideration with any turbine proposal will be the relationship to dwellings. A 500m residential exclusion zones is generally acknowledged as sufficient to provide effective mitigation from issues such as noise, shadow flicker and loss of visual amenity. The nearest dwelling to the application site is approximately 785m north-west of Turbine 1 (Tombuie Cottage).
- **Access and available land:** Efforts will be made to minimise the necessary civil works. The site is accessible to construction traffic and abnormal loads, and is not likely to cause interruption along the public highway during the construction phase. The site is large enough to accommodate the development without significantly affecting current land operations.
- **Technical constraints:** All constraints investigated (noise, shadow flicker, aviation impact, and EMI microwave link interference) are unlikely to cause any operational problems in this location - for both the smooth running of the turbine and local residents' considerations. The position of the Turbine 1 has been micro-sited to take account of likely wake effects from the installation of Turbine 2. The separation distance will be adequate to not cause any interference on wind resource for both turbines. This has been confirmed by the turbine manufacturer and associate wind analyst.
- **Cumulative wind developments:** This is an issue which has been carefully appraised through the Landscape and Visual Impacts section of this report as the locality is one of

considerable wind interest in terms of approved, proposed and implemented wind energy projects. The proposal has been consciously designed to compliment the double array of 45m turbines recently approved by the Council on Urlar Estate, approximately 2km to the south -east of Hill Park. In terms of turbine model, design, generating capacity, height, and twin turbine arrangement the proposals for Hill Park would be **identical**. The WTN 250 turbine was recently approved for siting at Urlar as a non-material variation to planning approval 11/00766/FLL.

Having regard to the landscape setting the proposal has been designed so that it would have a direct visual relationship to the approved Urlar site with this juxtaposition realising a clustered array of *medium scaled* turbines within the landscape. This would contrast in a positive way with the more distant and concentrated larger scale operational turbines at Griffin and Calliacher to the east and would avoid the Urlar array being ‘read’ as a visually isolated feature.

It is acknowledged that the cumulative impacts are a key consideration with this new proposal and for this reason the applicant has gone significantly further than the recommended requirements set out in the guidance of SNH in preparing his LVIA. Through the careful approach to design, turbine selection and siting which has been adopted it will be shown that the cumulative visual effects arising would not be significant in this location.

3 Project Description

3.1 Site Layout

Two turbines, associated control hut, crane hard standing and access track construction are proposed. The site is located within the young part of a commercial forestry on the Estate at Hill Park. (see Figure 1).

Access to the turbine location is obtained from the public highway by way of a short length of track across the applicants own land. The position of the wind turbines are shown on Figure 2 below.

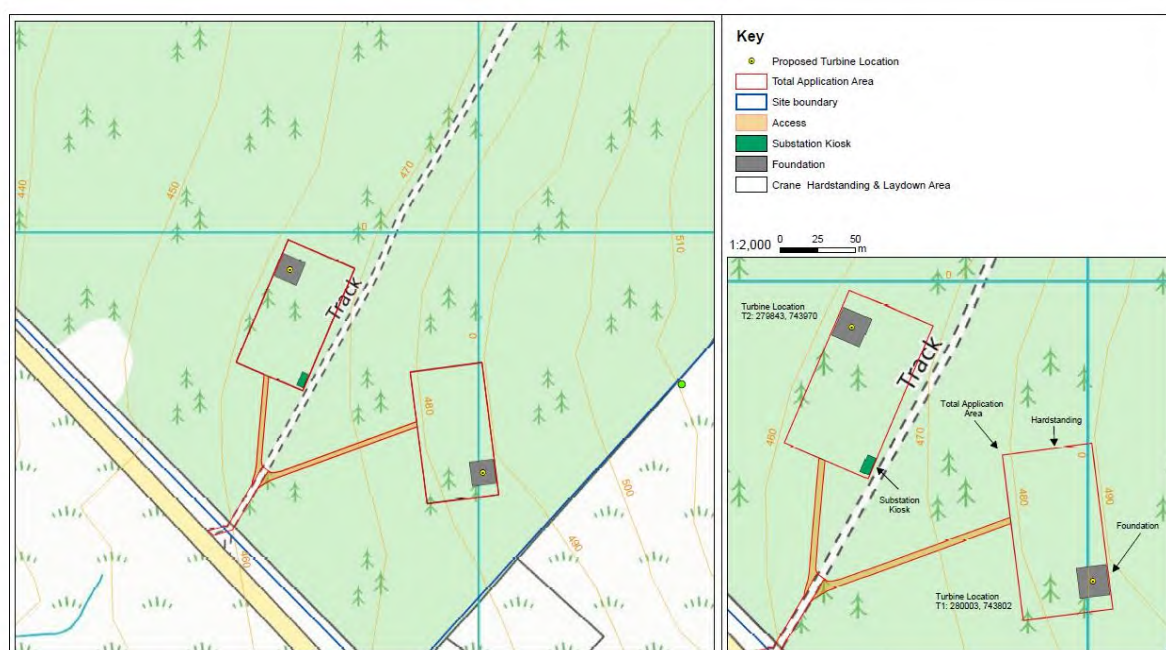


Figure 2: Proposed Site Layout (Full size version available in Volume 2)

3.2 Proposed Wind Turbine

The applicant has identified a candidate turbine - the WTN250 turbine. The key statistics of this turbine:

- Hub height: 30m
- Rotor diameter: 30m
- Maximum tip height: 45m
- Number of blades: 3
- Length of blades: 13.4m
- Output rating: 250kW

Due to technological advances and turbine manufacturers constantly improving the efficiency and design of their turbines in a fast-paced and evolving market, a candidate turbine has been used for the purpose of this environmental appraisal. The applicant requires the flexibility to choose the most appropriate model for the site at the time of turbine purchase. Should planning permission be granted, the final turbine model selected will not exceed the proposed tip height, as set out in this planning application.

The WTN250 is a geared, 3-bladed upwind-rotor wind turbine. The induction generator is mounted in the hub. The turbine has a hub height of 30m and a rotor diameter of 30 m, giving it a base to blade tip height of 45m; see Figure 3. The wind turbine has a rated rotor speed of 26/40 RPM. The cut-in speed of the turbine is 4m/s with a cut-out speed of 25m/s, which is typical of modern *medium-scaled* wind turbines.

The blades are made of reinforced polyester and are equipped with fail-safe tip brakes, which are activated simultaneously by centrifugal forces. The tower is galvanised steel and bolted-down to a steel ring, embedded in a reinforced concrete foundation. The tower contains an internal access ladder, with safety restraint systems to permit safe working access to the top of the tower and to the nacelle. A steel security door is set in the base of the tower to allow personnel access.

The tower and blades are painted a pale grey/off white colour (RAL 7035). This light colour of the turbine blends into the clouds and is easily absorbed into the natural skyline. The red stripes on the tips that are shown in the technical drawing are not normally included, but are available if requested for aviation purposes.

The turbine is estimated to generate approximately 571MWh of renewable energy per annum; the equivalent of 121ⁱ households per year and enough to displace the equivalent of up to approximately 245ⁱⁱ tonnes of CO₂ emissions per year from conventional forms of electricity generation. This figure has been calculated, based on the measured average windspeed at site to date and the WTN power curve data.

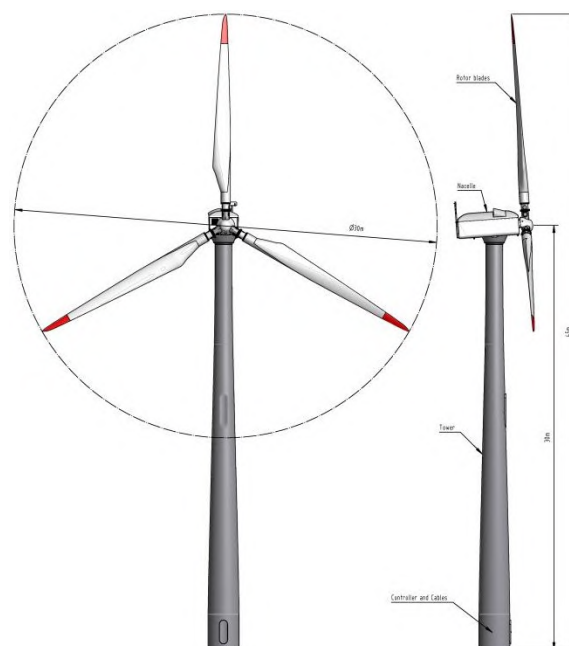


Figure 3: Turbine Elevations (Full size version available in Volume 2)

ⁱ Based on 'average' UK domestic electricity consumption of 4,700 kWh/pa, as used by Renewable UK.

ⁱⁱ Derived using a carbon dioxide offset ratio of 430g carbon dioxide per kWh of wind generation. It should be noted that future changes in the power generation mix and fuel costs in the UK over the life of the wind turbine, means this figure may change over time.

3.3 Foundations

Substantial foundations are required to resist the large overturning moments exerted by the wind turbine at the tower base. A typical foundation will take the form of a reinforced concrete raft, approximately 7.5m x 7.5m x 1.4m thick; founded some 2m below ground level and set into an excavation dug into the terrain (Figure 3a, Volume 2).

The foundations will be specified by the turbine manufacturer. Additionally, the exact specification will be determined through an intrusive ground inspection to determine the most appropriate construction techniques.

A tubular-steel “turbine foundation ring” is cast into the foundation, to provide a fixing for the base of the turbine tower. The foundation will also incorporate formed ducts for the power and telemetry cables.

3.4 Access

Turbine components will be transported by sea to a suitable port (WTN Turbines are transported in standard shipping containers on standard articulated lorries), which would most likely be Dundee. As wind turbines have previously been delivered from Dundee to sites using the A90, this access study has considered the route from the A90 onwards.

The recommended route leaves the A90 at Camperdown Park, Dundee and joins the carriageway to Perth. The route would exit via the Bridge of Earn slip and underpass to return to the M90 carriageway northwards via Broxden and Inveralmond continuing northwards along the A9. The route would exit at Logierait and take the A827 westwards along Strathtay to Aberfeldy. Beyond Aberfeldy the route would exit at the Bolfracks Estate and traverse the existing Estate Farm tracks southwards rising up to Tombuie Cottage on the Kenmore/Amulree public road. Directly from this road the site is able to be accessed by means of a short length of new track, approximately 25 in length. The suggested delivery route is indicated on Figure 4 below.

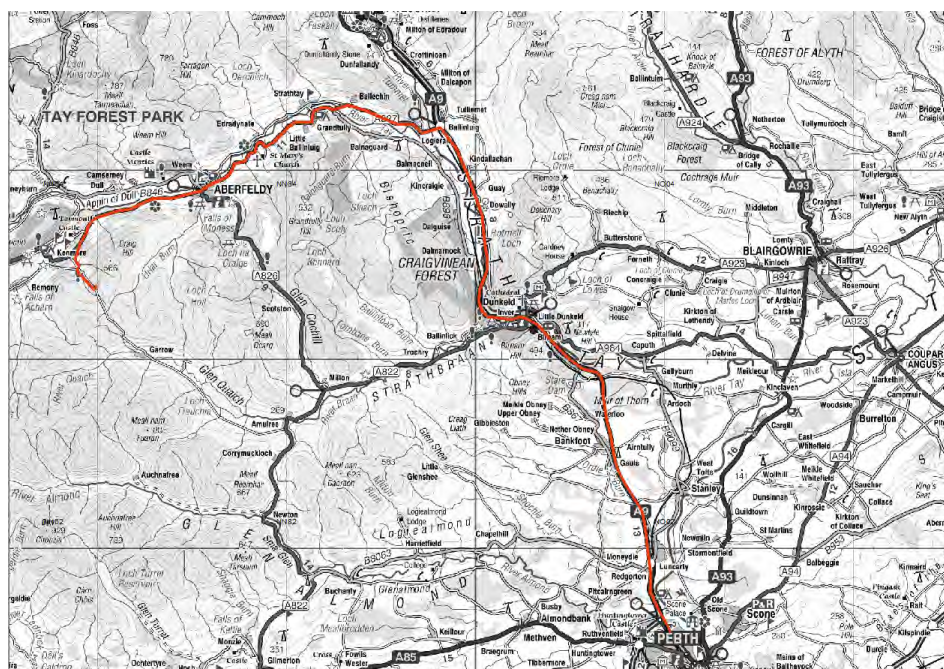


Figure 4: Delivery route to site

The Initial transport assessment indicates no pinch points existing along the public route for turbine delivery. Some limited vegetation clearance may be necessary along minor lengths of the private farm tracks on the Bolfracks Estate. There is adequate length of road on both sides of the proposed new entrance way to allow for motorist visibility to and away from the site.

On-Site Access

The access into the site from the County Road is shown on Figure 2. This access utilises the existing forestry track through the wood requiring only limited new track works and the crossing of a short area of verge from the County Road.

Construction of New Track

A limited new section of track will be required to be built from the existing forestry track across to the turbine site. The length of this track will be approximately 10m.

The track is required during the construction phase for the delivery of components by lorry into the site. Post-construction, during the operational period of the proposed development, the track would provide access for operations and maintenance staff to service the wind turbines and other infrastructure.

The exact final specification for the new access track will be approved by the wind turbine supplier or transport company however the following is indicative of the type of road construction that could be expected:

- To maintain gradients within acceptable limits, track routes would generally be required to traverse gradually across the slope, following the contours. The tracks are built by excavating cuttings into the hillsides to form terraces. This process is known as benching. Material cut from the up-slope side of the excavation can be used to support the flanks of the road on the down-slope side; minimising the requirement to use material moved from another part of the site.
- The surface of the tracks would be dressed with stone; won and crushed on site. The surface would have the appearance of a typical “forestry” track. Where practicable, the flanks of the track would be dressed with the topsoil and vegetation stripped-off during the excavations. Some parts of the track margin would be re-vegetated post-construction, thus minimising the visible extent of the works using soils and grasses/plants sourced from the immediate environs.
- The full length of the new track would be excavated to 200mm with excavated material being stored in the field for later use to form the track verges. The new track would be formed by compacting 300mm of material and topped off with 200mm of compacted clean imported crushed stone (see typical track detail, Figure 5). Should the existing tracks require consolidation this would be finished in the same way.

The new access across the roadside verge (10m in length) would be constructed in locally won stone and reduced in width following commissioning of the turbines.

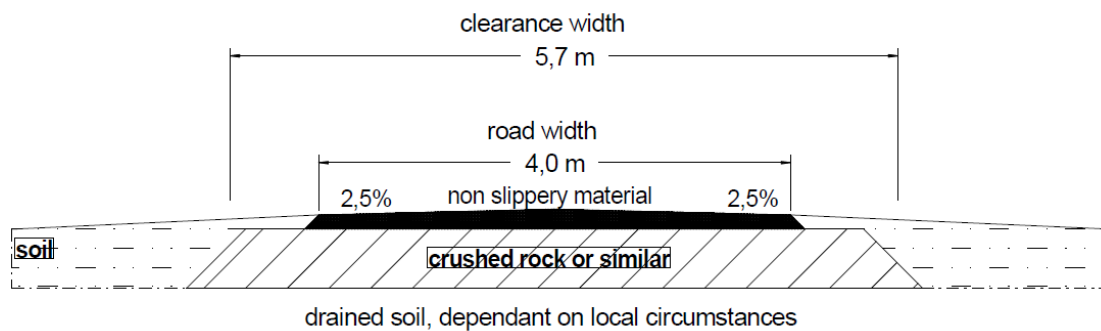


Figure 5: Typical access track construction detail

3.5 Temporary Hard-Standing Area

A hard-standing area is required at the turbine location to provide a stable working platform, from which a large mobile crane can assemble and erect the wind turbine. This hard-standing would also be benched into the hillside. The hard-standing would be needed as a parking area and turning place for the transport and construction vehicles and for temporary storage of plant and equipment during construction.

The hard-standing would be finished as described for the tracks. Some parts of the hard-standing may be re-vegetated using soils and grasses/plants sourced from the immediate environs, retaining the capacity for future use, but minimising the visible extent of the works.

3.6 Borrow Pit

No new borrow pits are proposed as part of this development.

3.7 Control Hut

Control hut facilities would be required within the site boundary, depending on the final optimised electrical design. The facility can have a number of operational purposes, and can house equipment including, but not restricted to:

- Transformer and switchgear equipment;
- Protective devices, telemetry and control interfacing equipment associated with the switchgear and transformer equipment;
- Network operator's metering and switchgear (at the site distribution voltage) as the point of connection to the grid system;
- Operator metering and switchgear (at the site distribution voltage);

The control hut would be sited next to the turbine, outside of the turbine foundation area. It would consist of a prefabricated GRP kiosk, sitting on a 3m x 3m x 200mm deep reinforced slab. The slab would be poured on the same day as the wind turbine foundation.

Technical design considerations include:

- Proximity to the main site access routes;
- Reducing the on-site cabling requirements.

The location proposed also reflects environmental design criteria, including:

- Minimising visibility by site selection and excavation to achieve partial recess in the terrain.

The control hut would be constructed to accommodate the facilities described above. The exact dimension and finish would be determined following detailed electrical design and optimisation. This is performed post-application arising out of the grid connection application process with SSE.

3.8 Grid Connection

A cable trench would be dug between the turbines and then onto the grid connection point. Excavated material would be stored alongside the trench and reinstated after cable installation.

The underground cables from the turbine would be brought together at the on-site sub-station, within the site boundaries. The on-site control and metering building is required to convert the voltage to 11kV, for transmission to the main grid connection point. An application for a new connection has been consented by SSE and it has been determined this would be made at the existing hydro powerhouse building at Tombuie.

Trenches for cables and ducts shall be constructed in a manner in accordance with engineering good practice and to suit the ground conditions for installation. This shall include the appropriate use of cable identification and marking devices.

3.9 Construction Programme

The construction period would last for approximately 3 - 4 months; from construction of the access track, through to erection of the wind turbine and commissioning. The indicative construction programme is shown in Table 1 below.

Activity	Duration	Timescale from Planning Consent (Months)					
		7	8	9	10	11	12
Roads, Hardstanding & Drainage	4 Weeks						
Foundation Excavation	1 Week						
Foundation Steelwork	1 Week						
Foundation Concrete	2-3 Days						
Control Building Construction	3 Weeks						
On-Site Cabling	1 Week						
Grid Connection	TBC						
Turbine Delivery	2 Days						
Turbine Erection	2 Days						
Turbine Commissioning	1 Week						
Site Reinstatement & De-Mobilisation	1 Week						

Table 1: Typical Construction Programme

3.10 Site Reinstatement

Temporary site construction elements, including the site compound and any temporary turning areas, would be removed and landscaped within six months from the date of final commissioning. The access track verges, cable backfill and area around the turbine base would be re-vegetated using soils and grasses/plants sourced from the immediate environs. The crane pad/hard-standing and access tracks would remain in place for any essential maintenance during the wind turbine operation period.

3.11 Decommissioning

At the end of the project's life (approximately 25 years) the site would be re-instated. Wind turbine components would be removed from site, including electrical switch room and underground cabling.

Generally, foundations would be removed to below the finished reinstated surface and the ground re-seeded, again using grasses/plants sourced from the immediate environs. The decommissioning process would take approximately a month to complete. A decommissioning programme would be agreed with Perth & Kinross Council prior to the commencement of decommissioning works.

4 Planning Policy

This chapter provides an overview of the most relevant national and local planning policy documentation which is applicable to a wind energy development of this scale. An application for the development of a wind project should be assessed in the context of national policy and guidance; the local planning authority development plan and any supplementary guidance.

It will be shown that the proposal would rest comfortably with the Scottish Government Guidance for Wind Energy and the Council's own Planning Policies. The proposal would make a meaningful and important contribution to the delivery of 'green energy' whilst balancing that important aspiration with the need for countryside protection through a sensitive approach to design and siting.

Hierarchy of Applications

The proposal falls as a 'Local' development proposal under the Town & Country Planning (Hierarchy of Developments)(Scotland) Regulations 2009, as the modest generating capacity of the turbine at Bolfracks (500 kw) would fall some way below the stated threshold for Major developments (20mw).

National Planning Policy

An application for the development of a wind project should be assessed in the context of national policy and guidance; the local planning authority development plan and supplementary guidance. This chapter provides an overview of the most relevant national and local planning policy applicable to wind energy proposals of the scale proposed.

Legislative Context

The Climate Change (Scotland) Act 2009 is a key commitment of the Scottish Government and establishes a legislative framework for reducing greenhouse gas emissions in Scotland and the transition towards a low carbon economy. Section 1(1) of the legislation introduces the statutory target for Scottish Ministers to ensure Scotland's net emissions reduce by at least 80% by 2050 lower than the 1990 baseline.

In addition to the 2050 target Section 2(1) of the legislation states "The Scottish Ministers must ensure that the net Scottish emissions account for the year 2020 is at least 42% lower than the baseline". This is to be known as the 'Interim Target'.

This *interim* target of at least 42% emissions reduction by 2020 is higher than the UK government stated aim of curbing greenhouse gas emissions by 34% by 2020 although the Act also contains provisions for the Scottish Ministers to vary targets following expert advice from such a body as the UK Committee on Climate Change, which will be 'the relevant body' in the absence of any formally established Scottish equivalent.

Under Section 2(4) the Scottish Ministers must, as soon as reasonably practicable request advice from the relevant body as to whether the percentage figure is the highest achievable *interim* target; and if not, what the highest achievable interim target is. This advice must be published by the Scottish Ministers no later than 31 December 2009

Prevailing advice on this 'target' is now set out in the 2020 Route-map for Renewable Energy (2011) and commits to what Scottish Government identifies as a 'formidable but achievable' goal of 100%

of electricity from renewable energy by 2020. More recently in October 2012, the Scottish Government announced an *interim* target of 50% by 2015, indicating an expectation of strong continued growth in the immediate term for the wind sector. The increase in renewable energy generation is viewed by Scottish Government as a vital step in reducing Scotland's greenhouse gas emissions.

The importance of the cumulative value of small-scale wind energy developments towards achieving that goal is highlighted, indicating that this target should be met by a range of technologies and sizes.

Town & Country Planning (Scotland) Act 1997 Sections 25 and 37 (2) require that planning decisions be made in accordance with the Development Plan unless material considerations indicate otherwise.

It will be show that the proposal at Hill Park is in accordance with the broad Policy objectives of the Development Plan and there are no material considerations which would outweigh that policy presumption.

SCOTTISH PLANNING POLICY

National planning policy is set out in the Scottish Planning Policy (SPP). The SPP confirms that the Scottish Government believes that a properly functioning planning system is essential to achieving its central purpose of increasing sustainable economic growth. It advises that the way in which the planning system is operated should be directed towards this purpose whilst also adopting a balancing role when competing interests emerge.

It is the applicant's firm opinion that the proposals at Hill Park would sit comfortably with the advice set out in this Guidance. The project comprises a sustainable economic development which would bring positive benefits to the local economy and to the environmental stewardship of the Bolfracks Estate. It would realise the local ownership of energy production; represents an opportunity to maximise Scotland's own security of energy supply and would also make a meaningful contribution towards the realisation of Scotland's ambitious renewable energy targets. It will be demonstrated that these benefits can be delivered in a manner which has regard to the landscape sensitivity of the site and without giving rise to any landscape harm.

The following paragraphs from the Guidance demonstrate the proposals consistency with recent Government Planning advice:

Development Management

Para 25 makes clear that planning decisions are required to accord with the provisions of the development plan unless material considerations indicate otherwise. It is advised that:

Where a proposal is in accordance with the development plan, the principle of development should be taken to be established and the process of assessment should not be used by the planning authority or key agencies to revisit that.

It will be shown that the Council's recent approval of a similar twin turbine proposal utilising an identical turbine model on land adjacent to Hill Park has demonstrated that the development proposed can be considered to accord with the broad objectives of the Development Plan.

Sustainable Economic Growth

Para 33 sets the context for the delivery of sustainable economic growth in Scotland by identifying that:

Increasing sustainable economic growth is the overarching purpose of the Scottish Government.

It is further advised that:

The planning system should proactively support development that will contribute to sustainable economic growth and to high quality sustainable places...

and concludes by advising that:

Achieving sustainable economic growth requires a planning system that enables the development of growth enhancing activities across Scotland and protects and enhances the quality of the natural and built environment as an asset for that growth. Planning authorities should take a positive approach to development, recognising and responding to economic and financial conditions in considering proposals that could contribute to economic growth.

The guidance clearly accords emphasis to the economic implications of new development in the planning decision making process whilst adopting a positive approach to sustainable economic growth. It will be shown that the proposals for Hill Park would contribute to sustainable economic growth without compromising the environmental quality of the area.

Para 36 makes clear that:

The fundamental principle of sustainable development is that it integrates economic, social and environmental objectives. The aim is to achieve the right development in the right place. The planning system should promote Development that supports the move towards a more economically, socially and environmentally sustainable society.

The Council's recent approval at Urlar of a similar twin turbine proposal utilising an identical turbine model on land adjacent to Hill Park has demonstrated that a project of this nature in this location would comprise an acceptable form of sustainable development.

Economic Development

Para 45 identifies that

Authorities should respond to the diverse needs and locational requirements of different sectors and sizes of businesses and take a flexible approach to ensure that changing circumstances can be accommodated and new economic opportunities realised.

And further:

The planning system should support economic development in all areas by:

- *taking account of the economic benefits of the proposed development in development plans and development management decisions;*
- *support development which will provide new employment opportunities and enhance local competitiveness.*

The importance of the proposal to the Bolfracks Farm and Estate as a new economic opportunity has been explained. The locational requirements of this proposal mean that by its nature it must have a certain exposure to wind to be viable. Invariably optimum sites will be elevated and may give rise to issues of landscape sensitivity. Whilst the applicant has sought to minimise these effects through a careful approach to design and site selection it is clear that this part of the SPP would encourage any Planning Authority to adopt a *balanced* approach to assessment taking into account all material planning considerations.

Renewable Energy

Para183 acknowledges the potential for small businesses in rural areas to invest in the ownership of renewable energy projects and Planning Authorities are encouraged to support such initiatives in an environmentally acceptable way.

This is a local initiative for the businesses of Bolfracks Estate and farm and is proposed as a further extension of their sustainable environmental stewardship of the estate. As such the proposal can be considered to be consistent with the above guidance.

Para 184 encourages Planning Authorities to adopt a supportive stance towards the development of a diverse range of renewable technologies to ensure that an areas renewable energy potential is realised and optimised.

This is a medium scaled wind proposal. The Council's recent planning approval at Urlar for an identical proposal demonstrates a supportive stance towards the development of medium scaled wind proposals in this locality. The proposal would serve to *optimise* the renewable energy potential of this location without giving rise to any *significant* landscape detriment.

Para 185 sets out factors that will fall to be considered with any wind energy proposal:

Factors relevant to the consideration of applications will depend on the scale of the development and its relationship with the surrounding area, but are likely to include impact on the landscape, historic environment, natural heritage and water environment, amenity and communities, and any cumulative impacts that are likely to arise.

This is a *medium* scaled wind proposal. It will be shown that the proposal would not give rise to any adverse effects on landscape, historic, natural heritage and water environments interests nor would it give rise to any adverse cumulative visual impacts.

Para 187 identifies that

Planning authorities should support wind farms in locations where the technology can operate efficiently and environmental and cumulative impacts can be satisfactorily addressed...

This is a *medium* scaled wind proposal which can operate efficiently in this location. The Council's recent planning approval at Urlar for an identical proposal is a clear guide that this is a location where environmental and cumulative impacts can be satisfactorily addressed. It will be shown that the addition of two additional turbines of the scale proposed would not realise any adverse cumulative visual impacts.

Conclusion

It has been demonstrated that committed environmental objectives for Scotland for a low carbon economy based on a strong renewable energy sector, as set out in the Climate Change (Scotland) Act 2009, the SPP provide a context of support for the proposals at Hill Park.

Other Advice

Advice Sheet for Onshore Wind Turbines

Government Planning Guidance for onshore wind is now set out in the form of web based renewables advice (specific advice sheets) which replaced PAN45 in February 2011. Web based advice is seen as an advantage for renewable energy policy, considering the rate at which new technologies are becoming more widespread and introduced into the planning system. The current Advice Sheet for Onshore Wind Turbines was published by Scottish Government in 2011 and updated in 2012. The following key points relative to the Hill Park proposal may be noted in relation to considerations in determining planning applications:

- Buffer zones should not be established around areas designated for their natural heritage importance and proposals should be considered on their merits;
- In assessing cumulative landscape and visual impacts, the scale and pattern of turbines plus the tracks, power lines and ancillary development will be relevant considerations;
- SNH Landscape Character Assessments should be used to determine those landscape characteristics that are particularly sensitive to wind farm developments;
- SNH Guidance in visualisation and assessment of impacts is recommended and supplementary information used to deliver local solutions to local problems must not conflict with national standards and must be a proportionate and reasonable burden on the applicant;
- Wind turbine developments can present opportunities to introduce environmental improvements through land management, land restoration and habitat creation.

2020 Routemap for Renewable Energy in Scotland sets out Scottish Governments renewable ambitions and path to delivery. It confirms that the Scottish Government is determined to ensure that Scotland benefits from the low carbon opportunity, and renewable energy is at the heart of that ambition. As well as confirming a commitment to a renewable target which is the most ambitious in the European Union, the Routemap identifies that the Scottish Government is determined to ensure that Scotland benefits economically from the low carbon opportunity, and

that opportunity is taken to maximise Scotland's own security of energy supply. The Routemap makes clear that renewable energy is at the heart of that ambition and confirms that a key priority for Scottish Government is to ensure that opportunity is extended to ensure local ownership of energy production. The Routemap identifies that the FiTs scheme is the means by which that priority can be realised.

Section 3.2 of the Routemap sets out the Scottish Government's specific ambitions for the onshore wind sector. It commits to a firm expansion of the portfolio of onshore wind farms as a means of meeting renewable targets through the full range of small and community-scaled installations up to large scaled commercial installations. It confirms that onshore wind turbines can make a very large contribution to the progress towards Scotland's renewable electricity target, and help establish Scotland's reputation as the green powerhouse of Europe.

In relation to the role of Planning in facilitating onshore wind developments the Routemap makes clear that the planning system must continue to balance environmental sensitivities with the need to make progress on renewable targets, whilst at the same time supporting planning authorities in maximising opportunities. Furthermore it is explained that development management procedures should be implemented that allow for appropriately designed and sited onshore wind proposals to emerge.

More recently in October 2012, through an update to the Routemap the Scottish Government have announced an interim target of 50% by 2015, indicating a strong continued growth in the sector. The increase in renewable energy generation is viewed by Scottish Government as a vital step in reducing Scotland's greenhouse gas emissions.

Tayside Landscape Character Assessment 1999

The application site lies within the *Highland Summits and Plateaux (3)* Landscape Character type identified by the Tayside Landscape Character Assessment (TLCA). Landscape Guidelines seek to discourage the location of tall structures such as turbines within this landscape because of their likely impact on the harsh, undeveloped character of the Highland Summits and Plateaux.

Policy 6 of the TAYplan 2012 would suggest that considerable weight should be accorded to the TLCA when assessing development proposals and determining applications. However the following should be noted:

- Whilst a useful tool for interpreting landscape character the age of the document is such that its Landscape Guidelines for tall structures is not wholly reflective of current Scottish Government Guidance in respect of the aspirations for growth of the wind sector;
- Notwithstanding the Guidance the Council has found to be acceptable an identical proposal close by at Urlar (Planning Approval Ref 11/00766/FLL);
- A number of larger scale commercial proposals have been approved at appeal in this Landscape Character Type and are now operational, demonstrating that tall structures can be successfully integrated into this upland landscape;
- The Beaulieu Denny replacement and upgraded power line has been approved and is routed through this landscape character type as an overhead line, contrary to the aspirations of the guidance;
- The Guidelines are narrow in their focus, presenting only a Landscape Character Assessment approach to the consideration of new development proposals. Accordingly the Landscape Recommendations make no allowance for the broader social and environmental objectives to deliver Scotland's energy security, extend the economic benefits arising from

local ownership of energy production, nor the contribution such development can make towards delivering Scotland's renewable electricity targets.

Conclusion

The Landscape Guidelines set out in the TLCA would seem to discourage a new turbine proposal in the *Highland Summits and Plateaux* (3) Landscape Character type. However, whilst this document is a key consideration in any visual appraisal it is suggested that it should not be used as the overriding consideration in the determination of this application because of the limitations identified above.

SNH Core Areas of Wild Land

Scottish Natural Heritage identified 'Search Areas for Wild Land' in 2002. These were considered to be where the most significant and valued areas of wild land would be found. But the map was a preliminary one, not including small areas or precisely defining boundaries.

On 30th April 2013 the Scottish Government published its Main Issues Report on the National Planning Framework 3 and revised Scottish Planning Policy. This is a draft document presently undergoing a process of public consultation. A key matter raised in the consultation includes the principle of affording significant protection to core wild land (as included in its map) from wind farm development unless any adverse effects can be substantially mitigated.

A number of criteria have been used by SNH to map these areas including the perceived naturalness of the land cover; the ruggedness of terrain which is challenging to cross; remoteness from public roads or ferries; and the visible lack of buildings, roads, pylons and other modern artefacts. The separate analyses of each of these layers have been combined to produce a map of relative wildness of Scotland.

SNH acknowledge that the GIS system used in appraisal includes known limitations such as structures consented or built since the analysis was initially undertaken. The mapped areas do not incorporate precise boundaries in order to reflect the transition between wild and more managed landscapes at the margins of those areas.

The closest area of mapped wild land to the application site at Hill Park is Core Area 9 - Upper Almond.

What should be noted in relation to any LVIA which takes into account the impacts of the proposal on these wild land areas are:

- That this proposal would not incorporate any extensive upland tracks extending into an area of unmanaged and wild terrain - the turbines would be sited on an area of cleared commercial forestry and would utilise existing forest tracks; and
- The application site has a direct relationship to visual and assertive man-made influences in the immediate surroundings which include: the Kenmore to Glen Quaich public road; the fishing bothy and Dam at the Reservoir immediately to the south of the site; established farm and forestry tracks; the March fencing between the Urlar and Bolfracks Estates; the presence of numerous Grouse Butts nearby; commercial forestry plantations and significantly the approved twin turbine developments at Urlar.

These factors exert sufficient influence over the application site and immediate surroundings that Hill Park can be recognised as a location well beyond any *transition* area bordering wild land. Accordingly it can be concluded that the two *medium scaled* turbines now proposed in this location would not intrude into any of those mapped areas of Core wild land to the north and west of the site and would not adversely affect their character, appearance, setting or reasons for designation.

4.2 Perth & Kinross Planning Policy

Introduction

Perth and Kinross Council have a number of documents which form the development plan for the area and which have relevance to wind energy projects:

The relevant Development Plan consists of the recently approved TayPlan Strategic Development Plan, approved in June 2012, and the Highland Area Local Plan, adopted in 2000 but scheduled to be replaced by a new Local Development Plan. Both have specific policies relating to renewable energy and a number of general policies that would apply to an application.

TAYplan Strategic Development Plan (2012)

TAYplan Strategic Development Plan (SDP) is a key strategic land-use planning document produced by councils within the Tayside region and provides the long term land use planning vision for development and the environment within Perth & Kinross to the year 2032. The SDP provides the framework for local plans which will contain more detailed and site-specific policies.

Relevant Policies

The TAYplan includes a number of key policies relevant to the consideration of this proposal:

Policy 2: Shaping better quality places. The policy requires all types of development within the TAYplan region to be fit for place and to be capable of supporting more sustainable ways of life.

Policy 3 Managing TAYplan assets: Accords an emphasis to the protection of sensitive landscape and environments in the TAYplan area whilst confirming that development will be allowed where it does not adversely affect any designated assets.

Policy 6: Energy and Waste/Resource Management infrastructure: Accords a positive emphasis towards the delivery of greater regional energy self-sufficiency and also to Scottish Governments ambitions for the mitigation of climate change. The Policy commits to the identification of areas of search for renewable infrastructure.

It identifies that key criteria by which proposed wind energy schemes will be assessed against will include:

- Consideration of the specific land take requirements associated with the infrastructure technology and associated safety exclusion zones where appropriate;
- Waste/resource management proposals are justified against the Scottish Government's Zero Waste Plan and support the delivery of the waste/resource management hierarchy;
- Proximity of resources (e.g. woodland, wind or waste material); and to users/customers, grid connections and distribution networks for the heat, power or physical materials and waste products, where appropriate;

- Anticipated effects of construction and operation on air quality, emissions, noise, odour, surface and ground water pollution, drainage, waste disposal, radar installations and flight paths, and, of nuisance impacts on of-site properties;
- Sensitivity of landscapes (informed by landscape character assessments and other work), the water environment, biodiversity, geo-diversity, habitats, tourism, recreational access and listed/scheduled buildings and structures;
- Impacts of associated new grid connections and distribution or access infrastructure;
- Cumulative impacts of the scale and massing of multiple developments, including existing infrastructure
- Impacts upon neighbouring planning authorities (both within and outwith TayPlan); and,
- Consistency with the National Planning Framework and its Action Programme

Conclusion

It is considered that the wind turbine proposal at Hill Park is compliant with the new TayPlan guidance. The proposed development has a small footprint and all anticipated environmental effects from construction can be effectively mitigated.

Sensitivity of landscape is also considered to be acceptable for the proposal, as demonstrated in the subsequent detailed assessment. Cumulative impacts have been assessed as *minor* for the site and it is considered that the proposal would fit in well with the nearest wind energy developments.

Highland Area Local Plan (2000)

This document sets-out the land-use plan covering the Highland part of Perth & Kinross. It contains detailed guidance on where the Council will encourage development and where it is unlikely to be allowed. It guides day-to-day planning decisions and influences the determination of planning applications.

The Highland Area Local Plan (HALP), along with other Local Plan areas in Perth & Kinross, is scheduled to be replaced in 2014 by a single Local Development Plan (LDP) covering the whole of the Council area. However, the HALP is the adopted plan at this time and as a consequence it must still be accorded weight in the consideration of this development proposal.

Policy 11 of the Plan relates to Renewable Energy proposals. The policy identifies that in appropriate locations renewable energy developments will be encouraged by the Council. Criteria used to assess suitability include:

- Development should not have a significant detrimental effect on designated archaeological or nature conservation sites of local, regional or national importance;
- Development should not result in an unacceptable intrusion into the landscape character of the area;
- Development should not give rise to unacceptable amenity effects on nearby residential occupiers.

Policy 18 identifies that a proposal which would have an adverse effect on the landscape character of National Scenic areas and would be opposed; whilst

Policy 19 identifies that Historic Gardens and Designed Landscapes will be protected.

Conclusion

It is considered that the wind turbine proposal at Hill Park would meet the policy objectives of the HALP. The turbines would not adversely affect any protected landscapes or archaeological or conservation sites of importance. The site is sufficient distance from dwellings to avoid any detriment to residential amenities. The proposal, because of scale, siting and intervening landform would not adversely affect the setting of the Historic Gardens and Designed Landscape at Mains of Taymouth / Taymouth Castle to the north.

Proposed Perth Local Development Plan 2012

Policy ER1A - This is the most up-to-date policy of the Council relating to wind energy developments.

It should be noted that the factors (a) - (h) set out in the policy, against which it is advised that renewable energy proposals will be assessed, are fully satisfied by the proposal. Furthermore:

- no concerns are raised in relation to biodiversity, water or heritage interests and the individual and cumulative landscape effects of the proposal would be acceptable in this location (a),
- a meaningful contribution (500kw) towards carbon reduction targets would be delivered (b);
- an acceptable connection to the electricity distribution system can be achieved (c) ;
- acceptable site access for this medium-scale proposal can be secured (d);
- no adverse visual effects would arise from ancillary tracks and borrow pit would result(e);
- there would be no adverse effects on any carbon rich soils at this site (f);
- positive effects on the Perth economy would be delivered (g);
- the landscape section of this report details why the appeal site has been favoured over others on the estate (h).

Other Perth Planning Guidance

Supplementary Planning Guidance for Wind Energy Proposals in PKC 2005

This supplementary planning guidance was the subject of a public consultation exercise ahead of approval by Perth & Kinross Council but has not been approved by Scottish Government and accordingly its weight in the determination of this application can only be limited.

The Guidance is useful however in that it can be seen that the application site is not within a *strategically sensitive area* but does lie within a *broad area of search* for wind development. Within such areas the guidance will look favourably on those wind energy proposals where detailed issues are satisfied.

The SPG's two wind energy policies can be read together to define the Council's preferred locations for wind energy development.

Wind Energy Policy 1:

Through this policy the Council commits to work with the private sector to ensure that Perth and Kinross makes an appropriate contribution to National targets for renewable.

It is considered that the proposed development would assist Perth & Kinross Council to contribute towards national renewable energy targets, by being sited in a location that meets the appropriate requirements - through consideration of key constraints and design mitigation.

Wind Energy Policy 2:

Through this policy the Council commits to supporting suitably scaled wind proposals which are appropriate to their location.

In terms of scale the applicant has followed the example of the *medium scaled* turbines the Council has found acceptable to this area as evidenced by the planning approval granted last year at Urlar nearby. In this way the applicant has sought to reflect the sensitivities of the local landscape and to realise a design solution appropriate to this location.

The proposal falls on the margin of the Broad Area of Search and Sensitive Area zones.

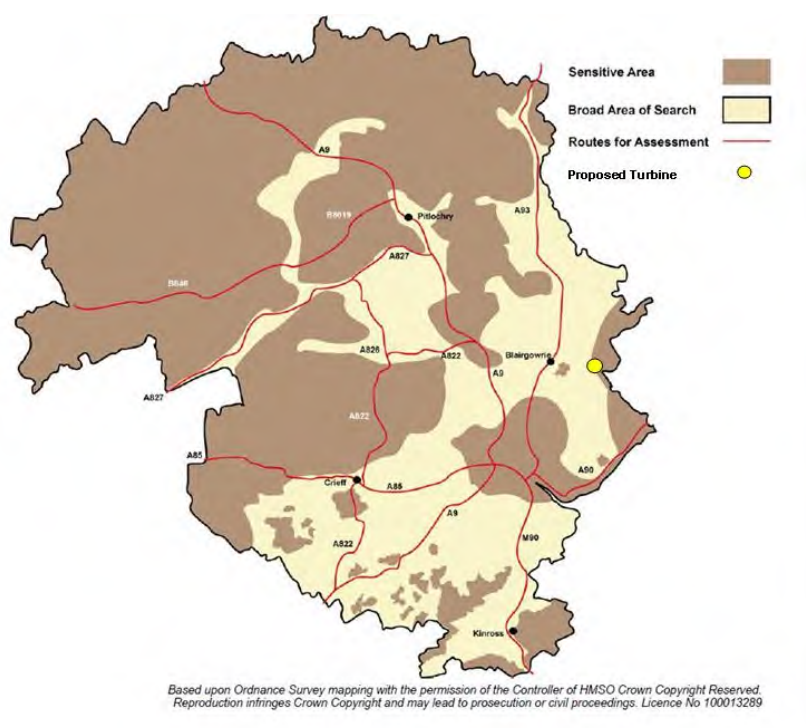


Figure 6: Wind energy development - PKC Area of Search zones

In such *fringe* areas the SPG can provide support to wind energy schemes where they would be consistent with the detailed Policy Guidelines.

Policy for both areas provides for the siting of turbines where impacts on settlements, landscape character, visual amenity, habitats, cumulative development are found to be acceptable and where the Council's detailed policy guidelines are satisfied. These factors are all discussed in the subsequent sections.

Detailed Policy Guidelines

Below is a table of the detailed policy guidelines taken from the Supplementary Planning Guidance. The Guidelines provide a structured form of appraising wind energy proposals to consider suitability

to location. They are included here to demonstrate that the turbine proposal at Hill Park could be accommodated in this location without giving rise to material harm to interests of acknowledged importance.

Guideline 1 - Landscape Impact

Wind energy proposals will be encouraged except in locations where they will have a substantial or moderate adverse impact on landscape character which cannot be mitigated. A commercial or community wind farm or cluster is unlikely to be acceptable on prominent ridges, hills or sensitive skyline locations in or within 5km of any of the sensitive locations listed below unless it is demonstrated to the satisfaction of the Council that the impact will be slight or not significant.

Hill Park proposal - As demonstrated through the Landscape and Visual Impact Assessment, impacts arising from the new turbine would be of a *minor* change with overall effects limited. Impacts on sensitive receptors would not be significant

Guideline 2 - Visual Impact

Wind energy proposals will be encouraged except in locations where they will have a substantial or moderate adverse visual impact which cannot be mitigated. A commercial or community wind farm, cluster or turbine is unlikely to be acceptable within 20-times the height to blade tip (hbt) of: houses and settlements, locally prominent landforms, Scheduled Ancient Monuments, significant archaeological sites and their settings, Conservation Areas and Listed Buildings where no satisfactory assessment has been undertaken and where it has not been demonstrated, to the satisfaction of the council, that the visual impact will be slight or not significant. Domestic scale turbines will normally be acceptable beside existing buildings where visually and functionally related to and in proportion with them.

Hill Park proposal-This policy guideline refers to a guide of 20-times blade tip height as a desirable distance from neighbouring houses and other sensitive sites, such as Scheduled Monuments, where it is likely that effects will be acceptable without the need for detailed assessment.

For a 45m tip height turbine, this equates to 900m setback from sensitive sites and properties. The nearest dwelling is located approximately 1km NW of Turbine 1 (Tombuie Cottage), at a level 140m below the turbine and the principle aspect of the dwelling is towards the west.

There are no cultural heritage features within 20 times hbt of the proposed development and in addition, it is considered that the proposed development will not have a significant effect on local cultural heritage features in the wider vicinity. This is primarily due to the limited magnitude and scale of the proposal, but also due to the level of woodland and topographic screening elements present as well as future regeneration plans identified to enhance screening of the site.

Guideline 3 - Cumulative Landscapes and Visual Impacts

Wind energy proposals will be encouraged except in locations where they have a substantial or moderate adverse cumulative impact on important receptors. A commercial or community wind farm, cluster or turbine when located within 40km of another is unlikely to be acceptable where it has not been demonstrated, to the satisfaction of the Council, that the cumulative landscape and visual impact will be slight or not significant. The Council will encourage developers to co-operate over the exchange of information, where cumulative assessment has been identified as important and is needed in order to make such assessments.

Hill Park proposal- As demonstrated in the Landscape and Visual Impact Assessment, cumulative effects and visual impacts are considered to be *not significant*, given the overall scale of the proposal, its relationship to an approved development of the same scale, and the location within an area which is not a designated landscape. Whilst the new turbines would be viewed with the approved turbines at Urlar, the scale, topography and contrast with Commercial operational farms to the east would realise a *medium scaled* cluster with no significant adverse cumulative effects.

Guideline 4 - Biodiversity

Wind energy proposals will be supported except in locations where they would have a significant adverse impact on biodiversity. In instances where there is uncertainty about the potential impact, a precautionary approach will be adopted. Where impacts can be mitigated, a Section 75 Agreement may be required to ensure habitat enhancement work is undertaken elsewhere for habitat loss or loss of raptor hunting ground at the wind farm area.

Hill Park proposal- As demonstrated in the Ecology assessment, there is an overall *low* risk of detriment to ecological interests at the site.

Guideline 5 - Cumulative Impact on Ornithological Interests

Wind energy proposals will be encouraged except in locations where they will have a significant adverse cumulative impact on birds. A commercial or community wind farm, cluster or turbine is unlikely to be acceptable where it has not been demonstrated, to the satisfaction of the Council, that the cumulative impact on birds will be slight or not significant. Where there is uncertainty about the potential impact, a precautionary approach will be adopted.

Hill Park proposal- As demonstrated in the Ornithology assessment, there would be an overall *negligible* impact on ornithology interests at the site.

Guideline 6 - Operational Impacts

Wind energy proposals will be encouraged except in locations where it has been assessed that there would be a significant adverse impact on the amenity of any dwelling within 20 hbt distance of a turbine, which cannot be mitigated, or where no assessment, satisfactory to the Council, has been made of the effects of noise, shadow flicker, construction traffic, and electromagnetic interference. Planning conditions or agreements will set:

- *Appropriate noise levels and require a post construction noise monitoring survey (where sensitive residential receptors have been identified);*
- *Traffic management plans where appropriate; and*
- *Correction of any electromagnetic interference at the developer's expense.*

Hill Park proposal- As demonstrated in the various technical sections of the report, operational impacts will be *minimal to slight* with no material detriment to residential amenity.

Guideline 7 - Water Resources

Wind energy proposals will be encouraged except in locations where there is likely to be a significant adverse impact on the water environment generally and water supplies in particular and where such unacceptable adverse effects cannot be mitigated to the satisfaction of the Council. Where appropriate, measures which mitigate any identified adverse effects on groundwater will be incorporated into a planning condition.

Hill Park proposal- As demonstrated in the hydrology assessment, impacts on water resources will be *minimal*. A number of potential environmental mitigation measures have been proposed.

Guideline 8 - Aviation Interests

Wind energy proposals will be encouraged except in locations where they would have a significant adverse effect on the safe use of airports and aerodromes/airfields (Dundee, Edinburgh, Leuchars, Perth or Portmoak) or on communications, navigation and surveillance (CNS) systems (including radar and other equipment including the air navigation beacon (Perth DVOR) at Perth Airport.

Hill Park proposal As demonstrated in the aviation assessment, impacts on aviation interests are considered to be *minimal*.

Guideline 9 - Maintaining 'Carbon Sinks'

Wind energy proposals must demonstrate to the satisfaction of the Council that the erection of turbines, buildings and access tracks will not result in an unacceptable release of CO₂ from peat bogs.

Hill Park proposal As demonstrated in the project description and site layout map, no impact is expected on any peat bogs.

Guideline 10 - Decommissioning and Site Re-instatement

In order to ensure the satisfactory removal of hill tracks, turbine towers and blades, and any ancillary equipment associated including overhead power lines and pylons with the wind energy development a 'decommissioning statement' will be required at the time the proposal is submitted and it should be updated on a five yearly cycle and finalised at least 1 year before the cessation of generation from the site - it may be enforced by a condition or the use of a Section 75 Agreement. A financial bond or similar mechanism may also be required to ensure the site can be reinstated.

Hill Park proposal - As demonstrated in the Project Description, Decommissioning and site Re-Instatement has been addressed and detailed.

Guideline 11 - Protection of Wind Energy Developments

Development proposals, including forestry, within 30 hbt (height to blade tip) of existing or approved wind energy sites will need to demonstrate, to the satisfaction of the Council, that the proposed development will not have a detrimental effect on productivity of any existing or approved wind energy site. Any development which would have such an adverse impact will be unacceptable.

Hill Park proposal -As demonstrated in the project description and cumulative assessment, the proposal will not have an impact on the operation or delivery of any existing or approved wind energy sites.

4.3 Conclusion

Although in the *Fringe* area between the Broad Area of Search and more Sensitive Areas it can be noted that Policy for both areas would support the siting of turbines where acceptable impacts on settlements, landscape character, visual amenity, habitats, and cumulative effects can be assured.

This EPR has appraised the proposal against the criteria set out in the Council's Guidelines. This confirms Hill Park to be a location suitable for a wind energy development of the scale proposed.

5 Cultural Heritage & Archaeology

5.1 Introduction

This section assesses likely impacts (direct & indirect) of the proposed Hill Park wind turbine on the known cultural heritage and archaeological features within the surrounding area. The assessment will primarily focus on the impacts upon noted archaeological features within the immediate area of the turbine.

The assessment will also examine important Scheduled Monuments, Listed Buildings and Historic Gardens and Designed Landscapes within the wider area, up to 2 km around the site. At distances of greater than 2km turbines of the scale proposed would appear smaller and less obvious within views and are therefore less likely to materially affect the setting and interest of any heritage assets.

Listed Buildings and regional archaeological sites of importance have been identified and impacts of development appraised. There are no Scheduled Ancient Monuments; Historic Battlefields; or Conservation Areas within the 2km search area

The assessment of those potential direct and indirect impacts will follow:

Planning Policy Context

Legislation relating to archaeological and scheduled ancient monuments is set out in the Ancient Monuments and Archaeological Areas Act 1979. Legislation relating to buildings of special architectural or historic interest is contained in the Planning (Listed Buildings and Conservation Areas) Act 1997. This Act requires Planning Authorities to have special regard to the desirability of preserving and/or enhancing the setting of those designated Listed Buildings and any features of special architectural and historic importance that they possess. The Act in relation to Conservation Areas seeks to preserve or enhance the character and appearance of those historic areas.

5.2 Approach to Assessment

A detailed assessment was carried out on the effect of wind energy development on any surrounding cultural heritage site within the area. This assessment focused on the extent of landscape and visual impacts of the proposal, as well as other potential impacts where relevant.

A desk-based study was carried out using Historic Scotland's available GIS dataset, and all heritage sites listed as Scheduled Monuments within a 2 km radius were identified.

The following information sources have also been consulted as part of this assessment:

- Sites and Monuments Record (SMR)
- National Monuments Record Scotland (NMRS)

5.3 Baseline Conditions

There is one significant cultural heritage asset located within the immediate area - Taymouth Castle Garden and Designed Landscape 1.6km north of the proposed turbine locations. The GDL is recognised as an impressive 18th century designed landscape that spreads across the whole glen of

the River Tay, and comprises parkland, woodland and category A listed buildings. There is no direct interaction with the relatively small area proposed for development and that Designed Landscape.

HS Scotland PastMap records confirm that there are no Scheduled Monuments within or immediately around the site. The nearest Scheduled Monuments to the site are Urlar Settlement (index no 4589) and Urlar Ring Cairn and cup marked boulder (index no 4588), approximately 5km north. The nearest Conservation Area is at Kenmore approximately 2.5km to the north-west of the site. Numerous Listed Buildings also lie to the north with the nearest (The Tower (Ref:12086) approximately 1.5km from the site.

Whilst PastMap records a number of Canmore entries to the north-west, none are located within the application site itself. The nearest potential feature of heritage interest is a cup and ring marked rock (Canmore ID 25005) located close to the south-west corner of the application site but on the western side of the public road. The proposed works of construction would not directly affect this heritage asset which is positioned on the opposite side of the public road to the application site.

5.4 Assessment of Effects

Although there are a number of listed buildings near the application site none of these are considered to have a significant view of the site itself due to their position and topography of the surrounding land.

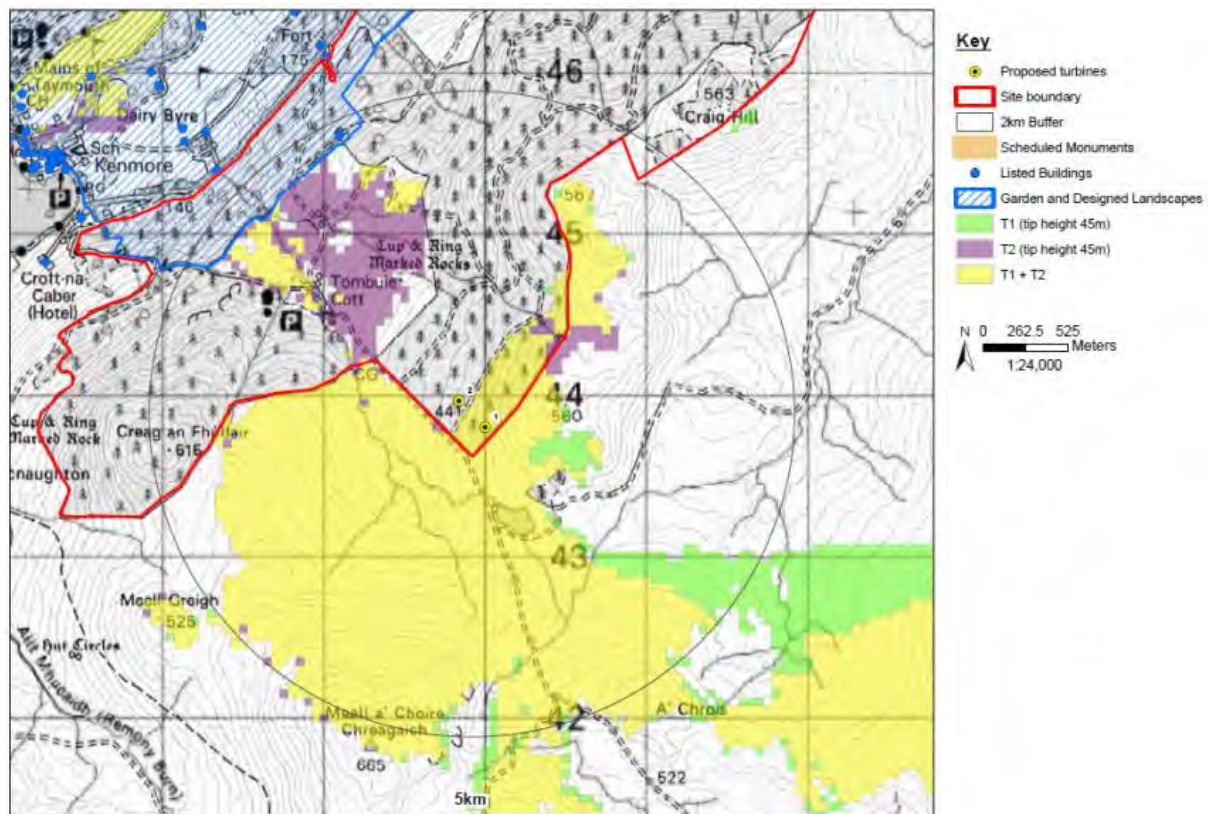
Visibility from Taymouth Castle Garden and Designed Landscape is also likely to be limited as is any potential visibility from Scheduled Monuments.

Below is a table and map (Figure 8) detailing the likely visibility effects from the nearby Garden and Designed Landscape (GDL) and Listed Building (LB) towards the site.

Name	Feature Type	Distance (km)	Direction	Visibility
1. Taymouth Castle	GDL	1.6	NE	The twin turbine project is likely to only be partially visible from the GDL. Although forestry features and landscape backdrop are likely to mitigate the effect through screening. Further visualisation on VP5 photomontage/wireframe.
2. Tower at the Braes of Taymouth	LB	1.8	N	The twin turbine project is unlikely to be fully visible from the Listed Buildings location. Visualisation on VP5 photomontage/wireframe.

Table 2: Likely Visibility Effects

Figure 4: Map of Cultural Heritage Features around Site



Taymouth Castle & Designed Landscape

Further consultations with Historic Scotland included the provision of a ZTV map for the site and a photomontage/wireframe for Taymouth Castle (category A listed - HB 12093) and its associated Inventory Designed Landscape. Whilst the castle lies some 3km NNW of the proposed turbines, the Designed Landscape extends to within 1.8km of the proposed turbines. Taymouth Castle, is orientated SSE and faces directly towards the turbines. It has deliberate designed views out over its designed landscape in this direction, and it is likely that the proposed turbines will be visible from some of the principle rooms. The severity and significance of this impact upon the setting of Taymouth Castle and its designed landscape is therefore something that will require careful consideration.

Kenmore Conservation Area

Reference to the photomontages and wireframes for VP's 3, 4 & 5 illustrate the 'enclosed' setting of the Conservation Area where the steeply wooded slopes bordering Loch Tay to north and south provide an imposing backdrop to Kenmore. Views into the and out of the Conservation Area are inhibited by established tree planting around the promontory. Those trees are a key feature of the Conservation area itself the importance of which is highlighted through the Perth & Kinross Council's published Kenmore Conservation Area Appraisal.

VP3 (Kenmore Bridge) indicates the limited impacts on the setting of the Kenmore Conservation Area which would arise as a consequence of the siting of the two turbines at Hill Park. Effective mitigation is offered by the limited height of turbines; the slope itself and the presence of

established woodland planting ensuring that the setting of the Kenmore Conservation area would be preserved.

5.5 Conclusion

This assessment concludes that there would be no direct impacts on features of historic interest within the area. Furthermore, indirect impacts on the setting of designated heritage assets as a result of erection and operation of the proposed turbines would not be significant.

6 Landscape & Visual Impact

6.1 Introduction and Scope of Assessment

This chapter considers the landscape and visual impacts of the proposed wind turbine development. It should be read in conjunction with the full Landscape and Visual Impact Assessment (LVIA) Report and associated figures, including Zones of Theoretical Visibility figures, Photomontage and Wireframe images which are included as part of Volume 2 to this submission.

The site is elevated and within an area which has experienced considerable wind interest in recent years. For this reason, the landscape and visual impact is considered to be among the key matters to be addressed and assessment will form a central component of this planning application.

The LVIA has been produced by *Atmos Consulting* in accordance with standards and guidance principally set out in the Landscape Institute and Institute of Environmental Management & Assessment's (IEMA) Guidelines for Landscape and Visual Assessment, third edition, published in 2013 (GLVIA), but also incorporating other *best practice* guidance.

Given the scale of the project, nature of the receiving environment, and the Council's acceptance of an identical proposal on a site nearby (Planning Approval Notice 11/00766/FLL), the applicant's intention had been to follow the Scottish Natural Heritage (SNH) guidance on the *Natural Heritage assessment of small scale wind energy projects which do not require formal Environmental Impact Assessment (EIA)*, March 2008 in preparing his landscape appraisal. However, when seeking to agree viewpoint locations with Perth and Kinross (PKC) in June of this year, the Council arbitrarily determined that the sensitivity of this new site at Hill Park, justified going **significantly beyond** the national guidance set out in the SNH document for this small scale, non-EIA proposal. The Council's recommendation was that a full LVIA and the scope of assessment for that LVIA, including an extended study area radius (30km), supported by an extensive number of representative viewpoints (14 in total), many of which are mountain tops with similar or repeating views, was the minimum requirement necessary to enable the Council to fully appraise the proposal.

In spite of repeated requests the Council has not been able to provide a justification in this case for (i) an extended approach to assessment which departs from National SNH guidance; nor (ii) a reason for not taking the same approach when dealing with the identical Urlar proposal last year (Planning Approval Notice 11/00766/FLL).

Despite these 'failings' the applicant has, at significant cost and with consequent delays to the project programme, fully complied with the onerous request of the Council. It will be shown through that exercise that landscape and cumulative visual impacts would not be *significant* due to the scale of the proposals, careful approach to siting and design, and its relationship to the approved development at Urlar.

5.1 Baseline and Assessment of Effects

Study area

The LVIA study area extends to a radius of 30 km from the turbine. This is identified in the Zone of Theoretical Visibility (ZTV) in LVIA Figure 3. It can be noted that potential visibility beyond 15km would be limited.

Landscape Policy and Designation

Within the study area a number of designated landscapes exist (LVIA Figure 1). These are:

- National Scenic Areas at Loch Rannoch and Glen Lyon between 6 - 30km to the north-west & Loch Tummel, 10-22km to north; and River Tay (Dunkeld) 17.5 - 28km to south-east;
- Areas of Great Landscape Value around Perth (35km east) and in Stirlingshire around Loch Tay and Killin (15km - 35km east);
- Gardens and Designed Landscapes (GDL) - Taymouth Castle 2km to north, Castle Menzies north-east;
- Conservation Areas (CA) - Kenmore Conservation Area - 2.5km to north-west;
- Wild Land and Core Areas of Wild Land - In the wider study area there are areas of higher natural heritage sensitivity. They include Core Areas of Wild Land (CAWL) character and Search Area's for Wild Land (SAWLs). Upper Almond CAWL - 2km to south-west; Ben Lams CAWL & Breadalbane - Schiehallion CAWL - 8km to north-west and Lyon-Lochay CAWL.

The character of the landscape context is defined within the Tayside Landscape Character Assessment (LCA), SNH Review No.122, LUC, 1999. That report provides a valuable benchmark for assessing landscape character. However, it should be noted that since publication, for some areas of the landscape, the baseline character is now very different with wind energy developments and other infrastructure having been constructed in recent years. Where the character has been modified in such cases, this has been noted within the assessment

Within the study area and of relevance to the proposed development, three principal Landscape Character Types (LCTs) are present (Figure 2 - Vol 2) within the principal areas of the ZTV. The site lies within the **Highland Summits and Plateau LCT**, with the linear, incised, low lying **Highland Glens LCT** and the **Highland Glens with Lochs LCTs** stretching from east to west, at 2km to 30km, to the north and 3km to 30km to the south.

Beyond these LCTs, the general distance, orientation and separation from the proposed site, would reduce the degree of visibility with no significant effects on the character of any other LCTs anticipated. Visibility would also be notably restricted from most key areas of the **Highland Glens** and **Highland Glens with Lochs LCTs** beyond 5km.

6.3 Viewpoint Selection

Representative viewpoint selection

The applicant has adopted the viewpoints within the extended ZTV as recommended by the Council. From these representative viewpoints, the detailed assessment of visual effects has been considered by means of wireframes and photomontages. 14 viewpoints in total have been incorporated. These embrace a cross section of sensitive visual receptor groups and locations and are representative of likely effects on users and the general visual amenity of the area.

The viewpoints are:

- VP1 - Schiehallion;

- VP2 - Ben Lawers;
- VP3 - Kenmore Bridge;
- VP4 - Black Rock;
- VP5 - Taymouth Castle;
- VP6 - B846 north of Coshieville;
- VP7 - Rob Roy Way;
- VP8 - Fortinghall;
- VP9 - Meall Greig;
- VP10 - Glen Quaich Rd north of site;
- VP11 - Bein Ghlas;
- VP12 - Meall Tairneachan;
- VP13 - Craig an Sgliate;
- VP14 - Meal Nam.

A mixture of montages and wireframes are presented. In spite of repeated visits to some of the hill summits, conditions experienced at some viewpoints were not conducive to optimum photography. As a consequence wirelines are presented supplemented by photography for VP's 11 and 13. At the Council's request acetate copies are presented for each of the VP's 4,6,7,8 & 14 and it is hoped that these will assist the Landscape and Planning Officers when undertaking their own site inspection.

6.4 Extent of Landscape/Visual Effect

Defining Magnitude of Effect

Once the quality and sensitivity is established, the magnitude of the anticipated **effect** needs to then be identified. This is defined within GLVIA (Guidance for Landscape and Visual Impact Assessment) as *a combination of the scale, extent and duration of an effect* and is categorised as *High, Medium, Low or Negligible*, or as a **combination** of two categories to provide a more subtle, intermediate and detailed group i.e. *High to Medium or Medium to High*.

Establishing Extent (Significance) of Effect

The extent of an effect is then determined by assessing the magnitude, in the context of the sensitivity of the landscape or visual receptor, to the change. For example, a change of Low magnitude in a highly sensitive view or landscape may be more significant than a change of Medium magnitude to a view or landscape considered to have Low sensitivity. Other key criteria used in determining significance levels include the spatial extent and duration of the effect and the degree of reversibility. The significance of the effect is then determined in accordance with Table 2 below.

Table 2 - Extent (Significance) of Landscape / Visual Effect

		SENSITIVITY (of the landscape or visual receptor)		
		Low	Medium	High
MAGNITUDE (of the predicted effect upon the landscape and visual resource)	High	Moderate	Moderate/Major	Major
	Medium	Minor/Moderate	Moderate	Moderate/Major
	Low	Minor	Minor/Moderate	Moderate
	Negligible	Negligible	Negligible	Negligible

Representative Viewpoint Selection

The purpose of the visual assessment is to identify from where and how it may be possible to see any part of the proposed development and to determine how this would affect the visual resource. The extent of visibility is firstly considered within the ZTV and then principally from a number of representative viewpoints that cover a broad range of sensitive viewpoints and represent both the different types of view and different types of viewer (ie visual receptors). Integral to this process is the need to define the sensitivity to change of the visual resource, which provides the baseline, against which the assessment of effects can be made.

Extent of Visibility

The computer generated ZTVs to hub height (30m) and blade tip height (44.5m) (Figures 3 and 4 Vol 2) identify areas of the landscape, from which the proposed wind development may theoretically be visible. This is in line with the *Visual Representation of Windfarms, Good Practice Guidance* (SNH). However it is important to note that ZTVs are tools for assessment and these are limited in several ways, including that, bare ground ZTVs make no allowance for any screening effects that may arise due to existing vegetation or built development (Figure 3 Vol 2). To limit this exaggerated impression of likely impacts, the significant areas of existing woodland have been incorporated into the terrain model to provide a more realistic impression of anticipated visibility, using woodland areas identified on the 1:25k OS base (Figure 4 Vol 2). The real extent of the ZTV would also be influenced further, by the subtle variations of landform and landcover that are not reflected through the digital terrain modelling data (DTM).

Key Visual Receptors

A range of visual receptors and receptor groups can be expected to be affected by a development of the nature proposed from both static and sequential points. Those receptors would include, but not be limited to, residents, motorists and those visiting the area for recreational, amenity and tourism purposes. The extent of effect upon certain groups would then vary according to their level of sensitivity to the type of development. For ease of presentation the assessment identifies three key groups: (1) local residents; (2) motorists; and (3) tourists /recreational visitors to the area. The baseline sensitivity of these groups is summarised in Table 1-1 (Full LVIA - Vol 2)

Representative Viewpoint Appraisal

The locations of the 14 viewpoints are shown on LVIA Figure 4a - Vol2 with the existing and predicted views illustrated through LVIA Figures 5-21 (Vol 2) for each of the 14 viewpoints. The existing viewpoint characteristics have been reviewed in accordance with current guidance and the methodology above. The baseline sensitivity to change is detailed below in Table 4, along with a description of the predicted magnitude and extent of effect.

Table 4 - Representative Viewpoint Baseline

V P	Location	Grid Ref	Distance of View	Key Receptor Grp Static*/Sequential**	Sensitivity to change
1	Schiehallion	271474, 754696	13.6km	Visitors – Hill Walkers at summit viewpoint*	High
2	Ben Lawers	277143, 745596	16.8km	Visitors – Hill Walkers at summit viewpoint*	High
3	Kenmore Bridge	263614, 741716	3.2km	Residents /Visitors*	High
4	Black Rock, Drummond Hill	276309, 745742	4km	Visitors*	High

V P	Location	Grid Ref	Distance of View	Key Receptor Grp Static*/Sequential**	Sensitivity to change
5	Taymouth Castle	278489, 746492	2.9km	Visitors*	High
6	Adjacent to B846 North of Coshieville	277588, 749774	6.2km	Motorists**	Medium - Low
7	Rob Roy Way	280187, 742866	1.2km	Visitors – walkers / sequential **	High -Medium
8	Fortinghall to Beinn Dearg path	273585, 748498	7.7km	Visitors – walkers / sequential **	High -Medium
9	Meall Greig	267409, 743794	12.5km	Visitors – Hill Walkers at summit viewpoint*	High
10 a	Adjacent to Glen Quaich road North of site	279106, 744510	0.91km	Motorists**	Medium - Low
11	Beinn Ghlas	262465, 740301	17.8km	Visitors – Hill Walkers at summit viewpoint*	High
12	Meall Tairneachan	280750, 754364	10.4km	Visitors – Hill Walkers at summit viewpoint*	High
13	Creag an Sgliata	277009, 739831	5km	Visitors – Hill Walkers at summit viewpoint*	High
14	Meal Nam	281985, 737165	6.9km	Visitors – Hill Walkers at summit viewpoint*	High

Predicted Effects on Landscape Character

Highland Summits and Plateau LCT

The proposed wind turbines would be located within the **Highland Summits and Plateau LCT**. This large LCT extends to cover most of the immediate landscape context to the south and east. It is therefore the LCT most susceptible to the effects of the proposal.

As the ZTVs indicate (Figures 3 to 4 Vol2), the potential for extensive visual exposure within the LCT, is relatively *low*. The principal zone of visibility would be contained within the immediate plateau slopes to the south of the proposed turbines up to 2-3km. It would also stretch to isolated high points on the north and east fringe of the Glen Almond area, at around 6km. More extended visibility would then be found from separate elevated sections of the LCT to the north of the **Highland Glens LCT** and **Highland Glens with Lochs LCT** at Taymouth. At these points it would stretch across the south facing plateau slopes and summits, principally at 7-12km to the northwest, but also at an isolated hill summit within forestry, at 4km at Black Rock. Elsewhere within this expansive LCT, the visual exposure would be limited. This is due to the prominence of the characteristic landform and the presence of numerous coniferous forest plantations. The turbines would be sited within an area of commercial forestry. Clearance of some tree planting will be necessary to accommodate the turbines. However a significant proportion of the woodland would remain. This plantation is the subject of an agreed Management Plan with Forestry Commission Scotland so will be cropped and replaced with new planting during the ‘life’ of the turbines. Such land management practices should be viewed as part of the transient nature of a managed upland landscape and will be typical of landscape change within the Highland summits and Plateau LCT.

Where the turbines would be visible, they would typically be seen across and within the elevated open moorland and against a simple palette of characteristic elements including open heather, grassland craggy hills and blanket bog with occasional lochans and coniferous forest plantations.

This open, sweeping character would help to anchor the turbines into their immediate setting where they would often be backclothed by higher terrain and appear diminutive or inferior to the scale of the surrounding landscape.

While some parts of the LCT demonstrate a large, open and remote character, much of the character of the LCT, between 4km and 15km to the east of this proposal, has been modified by the introduction of other tall built artefacts in the form of overhead power lines and large collections of wind turbines. These provide a clear, prominent and expansive focus within the same section of the LCT as the site context. As a result the proposed turbines would not provide a new built element or focus in the LCT, but would usually be seen as a modest addition to the existing influence turbines in the host section of the LCT across the Craigvinean Forest range. The turbines would not, therefore, fundamentally alter the balance of existing characteristics within this part of the LCT. Nor would they affect the more remote, higher valued points beyond this section of the LCT towards Meall nam Fuaran, and at separate sections across the Ben Lawers and the Schiehallion range, where the absence of human artefacts is more pronounced and the perception of remoteness greater.

The magnitude of change on the characteristics of the LCT is therefore considered to be *Medium - Low* within 2-3km to the south side and *Low to Negligible* elsewhere. When combined with a baseline sensitivity of *Medium* across the Craigvinean Forest area, the extent of effect on the Highland Summits and Plateau LCT is judged to be locally *Moderate to Minor* up to 2-3km to the south side. Elsewhere, and from the large majority of the area, the extent of effect would be *Minor to Negligible*, with no significant effects on the general scale, simplicity and wider pattern of key characteristics of this LCT.

Effects on surrounding LCT's

The ZTVs (Figures 3 and 4 Vol 2) indicate that visibility would be limited from key sections of the surrounding LCTs. This includes the nearest LCT's to the north, along the **Highland Glen LCT** and **Highland Glen with Lochs LCT**. At these points the characteristic steep sided glen slopes and the substantial woodland patterns connected with the estate and forestry areas, enclose and curtail views to the south. Views are then channelled along the glen from east to west and notably, away from the proposed development. This is evidenced in the photomontages from viewpoints 3 and 5.

Where the bare ground ZTV indicates some visibility, this largely occurs within coniferous forest areas and it would not normally be available with views more typically heavily filtered through characteristic woodland and forest, this would also include the area around Coshieville, as demonstrated by the assessment from Viewpoint 6.

Visibility would, therefore, be restricted to an isolated, linear patch along a minor road on the south side of Drummond Hill, within the eastern tip of the **Highland Glens with Lochs LCT**. From this point, the proposed turbines would just be evident with sporadic views to the blade tips, sitting substantially beyond the sweeping landform skyline and the settled glen areas. The turbines would, therefore, lie away from the focus and orientation of key characteristics across the lower lying **Highland glen LCTs** so as not to significantly impose on them. As a result there would be no significant effects on the characteristics of the surrounding LCTs. This would also be the case for other separate highland glen LCTs to the south along Glen Quaich, where there is limited potential for notable visibility and effect on character. This is detailed in Table 1-6.

Effects on Landscape Designations

There are a number of landscape designations within the study area, but none exist within the general vicinity of the development proposal across the Craigvinean Forest range section of the Highland Summits and Plateau LCT, to the north of Glen Quaich.

Most key sections of the designated landscapes also lie beyond the principal areas of the ZTV (Figures 3 and 4 Vol 2). While there would be some potential for some visibility from isolated summits within the south-eastern fringes of the Glen Lyon NSA, the views from these summits would be substantially towards areas outside the NSA and to a clearly separate landscape context to the southeast, which is already defined by expansive wind turbine and pylon influences. As a result there would be no significant change in the view from these areas and no potential for significant effects on the qualities for which the areas have been designated. The proposed turbines, located at a clearly separate point and distance in excess of 5km, would not therefore undermine the integrity or setting of this area. This is also the case for associated CAWLs at Ben Lawers and Breadalbane - Schiehallion and also from the Upper Almond CAWL to the south. This is summarised in table 1-6.

Effects on Historic Landscape

The majority of historic features within the study area are connected with the surrounding lower lying glen areas to the north. Given the strong change in elevation they are generally well contained from the north and south. They also lie mostly beyond the principal zones of the ZTV (Figures 3 and 4 Vol 2).

Kenmore Conservation Area - The Conservation Area would be substantially screened from the proposed development by the notable and abrupt change in landform and forest cover, directly to the south of Kenmore. As a result there would be limited potential for effect on views from within the CA including The Square and Kenmore Bridge to the north.

Taymouth Castle GDL - The landscape setting of Kenmore and Taymouth GDL lies *nestled within a dramatic landscape* as illustrated in the Kenmore Conservation Area Appraisal. This wider landscape includes the Glen Lyon Hills which form a prominent backdrop with Loch Tay. This is most apparent in views north from Craig Hill and other points to the south. Again, the steeply rising hills to the south together with the extent of forestry cover on the slopes means that limited impacts on the GDL would arise as a result of the turbines siting. At these points there would be no views of the turbines and no effect.

Landscape Effects Summary

The landscape assessment has shown that effects on the landscape and its characteristics would be limited in extent and significance. Where they do occur they are limited to the immediate open sections of the **Highland Summits and Plateau LCT** within 2-3km to the south. While the turbines would create a new focus at these isolated points, they would typically be seen as minor elements in the underlying context, with no adverse effects on the wider scale, focus, integrity or setting of key features. Where visible from most other points they would relate to a strong and expansive wind turbine influence and it would not, therefore, be out of place with other elements in similar sections of the landscape. Although they sit slightly closer to the low lying highland glen areas to the north, the turbines would clearly sit in context of the larger scaled open moorland of the **Highland Summits and Plateau LCT**. They would also be largely screened from key central areas of designated landscapes, where more sensitive characteristics exist with no effect of the balance of elements or no notable encroachment upon those areas. This is summarised below in table 1-6.

Table 1-6 - Landscape Effects

Character Type	Sensitivity to change	Magnitude of Effect	Extent of Effect
Highland Summits and Plateau LCT	Medium	Medium-Low(2-3km south) Low -Negligible	<i>Moderate - Minor</i> <i>Minor - Negligible</i>
Lower Highland Glens LCT (1c)	Medium – High	Low -Negligible	<i>Minor - Negligible</i>
Mid Highland Glens with Lochs (2c)	Medium – High	Low -Negligible	<i>Minor - Negligible</i>
Designated Landscape			
Loch Rannoch and Glen Lyon NSA	High	Low -Negligible	<i>Minor</i>
Upper Almond (CAWL 9)	High	Low -Negligible	<i>Minor - Negligible</i>
Ben Lawers(CAWL 13)	High	Low -Negligible	<i>Minor</i>
Breadalbane – Schiehallion(CAWL 11)	High	Low -Negligible	<i>Minor</i>
Historic Landscape (landscape setting)			
Taymouth Castle GDL	High	Low -Negligible	<i>Minor</i>
Kenmore CA	High	Low -Negligible	<i>Minor</i>
Application Site			
Landscape Fabric	Medium	Medium Low	<i>Moderate - Minor</i>

Effects on the Residential Receptor Groups

The visual assessment shows that, geographically, the extent of significant visual effect would be relatively *low*. Given the setting and nature of the host landscape within an area of coniferous forest plantation surrounded by open moorland, the proposed turbines would not lie close to large numbers of sensitive receptors including residential properties. Where properties are present they lie within lower lying glen areas and are screened by notable landform variation and woodland cover. This would limit the potential for any significant effects on residential amenity.

Effects on Travellers

For motorists, visibility would also be limited with no significant effects predicted, with just fleeting or glimpsed views, screened by vegetation and landform, from the minor roads passing the site and to the north side of the nearest glen area at Kenmore.

Effects on Visitors and the Tourism / Amenity Resource

The visual change as a significant effect would, therefore, be experienced by a relatively small number of people. This would be restricted to an isolated viewpoint at Black Rock used by recreational visitors. From this point an open view would be available towards the development. However, the proposed turbines would be seen clearly within the context of a working forestry area in the highland plateau landscape to the south of the lower lying glen area and would be seen as small elements in the wider view.

More extended visibility would be available from intermittent munro summits to the north of Loch Tay, within the Glen Lyon NSA, which form a key focus for recreation and tourism receptors in the area. At these more distant points, the proposed turbines would be viewed within expansive far reaching panoramas which take in a range of varied landscapes. They would also sit at a clearly separate point from the summit viewpoints and as minor elements within a separate section of the highland plateau, below the skyline. At these elevated points they would also be seen in the same context as other more prominent, extensive collections of wind turbine and large pylon influences. While the proposal would sit at a slightly closer point to the highland glen areas around Loch Tay they would still be observed at a clearly defined point within the plateau moorland context. This would limit the potential for encroachment in to the settled glen areas, as evidenced by the limited visibility from these points

Cumulative Effects

As detailed in the main LVIA, the host landscape has been substantially modified by existing wind turbine and large pylon influences. This influence is principally focussed on the Craigvinean Forest section of the Highland Summits and Plateau LCT, to the north of Glen Quaich (Figures 19 and 20), with two large wind farms at Griffin and Calliachar, and the new Beaully-Denny 400kV pylon line. These now provide a significant and expansive built influence in the surrounding landscape.

As the Cumulative ZTV in Figure 21 indicates, the theoretical cumulative exposure of these two operational wind farm developments extends across the open moorland that surrounds the development site. It continues further to other notable high points to the north of the highland glen areas. This is evidenced by the cumulative wireframes from each of the identified viewpoints. The exposure of these operational developments would also be, at times, more extensive than the proposed turbines. This would include more widespread areas across the host Highland Summits and Plateau landscape to the south and east and the more remote and valued points across the Glen Almond CAWL. It would also include the fringe landscapes of the Glen Lyon NSA and its associated mountain summits and CAWL's along with further fringe areas of other NSAs at Loch Tummel and the River Tay (Dunkeld).

As the ZTV also shows, the proposed turbines would rarely add to the existing extent of visual exposure from these sensitive points and seldom provide a new defined element into the landscape resource. The two turbines would also be of a smaller scale and at a sufficient distance from the nearest turbines at Calliachar so as not to significantly change or alter the underlying balance of elements in the landscape and visual resource, the Calliachar and Griffin turbines being more than twice the height of the proposed turbines. The cumulative effects of the proposed turbines, in combination with other existing developments would not, therefore be significant, with no extensive visible overlap or complexity in developments from the vast majority of the surrounding landscape and only a modest addition to the existing influence.

A consented but currently not built scheme at Urlar is at a similar elevation to the Bolfracks turbines and location to the south side of Loch Tay at 2.5km southwest of the proposal. This approved development is for two turbines of the same blade tip height as those now proposed. As

the Cumulative ZTV in Figure 20 shows, the two schemes would be visible together from most of the elevated moorland landscapes to the north of Loch Tay and to the south of the proposed site at Bolfracks. The ZTV also indicates that, at times, the Urlar turbines would be visible from wider key stretches of the glen areas, particularly across Loch Tay, to the northwest and therefore sets an accepted pattern of wind turbine influence at this point to the south of Loch Tay. The Bolfracks turbines would then carry no greater influence than these consented turbines, across these glen areas. This is evidenced by the cumulative wireframes from the identified viewpoints.

Mitigation Design

The inherent characteristics of wind turbines suggest that there is little opportunity for incorporating mitigation measures within the development itself to further minimise the effects upon the landscape resource and the visual environment.

The principal opportunity for incorporating mitigation into the scheme has evolved through an iterative approach to design. During the schemes development consideration has been afforded to issues such as: the sensitive routing and construction of access tracks; the size and detailed siting of the turbines; proximity to watercourses, biodiversity corridor's and impacts on housing. The height of the turbines was subsequently reduced following initial consultation with the Council.

6.2 Conclusion

The detailed viewpoint assessment has indicated a positive picture regarding the significance of effects upon key visual receptors. In EIA terms, no effects of *Moderate to Major* or more would be predicted on key receptors at identified viewpoints. *Moderate* significant effects were then predicted at only one isolated viewpoint - Black Rock. For the remaining 13 viewpoints assessed no significant effects were anticipated. This is notable given the high level of sensitivity accorded to most key receptors in the area.

When considered together with the effects on all relevant key receptor groups present and the limited geographical extent of the ZTV across the area, the overall effects on visual amenity are not considered to be significant.

Where visible the turbines would be, on the whole, seen as a *minor* additional element to the existing wind turbine influence in the open moorland landscape and at a point, clearly outwith the sensitive areas. They would also sit at a point which would add to a key focus of turbines, rather than provide a new and separate focus. This would limit the potential for adverse effects from more valued, remote sections of the landscape where the absence of human artefacts is more important in defining character. As a result there would be no significant effects on the character, special qualities, landscape setting and/or views from those sensitive areas, in particular the view from Core Wildland areas. The turbines would also be consistent with the existing landscape character of the area and the emerging pattern of wind turbine influences which have evolved within this section of the **Highland Summits and Plateau LCT**.

The overall cumulative effects of the proposed turbines, in combination with other existing and consented developments is also not considered to be significant, with no extensive visible overlap or complexity in developments from the vast majority of the surrounding landscape and only a moderately strengthened element locally. As a result it is concluded that the surrounding landscape does have the capacity to absorb the type and scale of development proposed, without significant cumulative effects on the underlying characteristics.

In summary therefore, it is considered that the nature and character of the receiving environment does have the ability to accommodate this minor change without giving rise to any significant landscape, visual and cumulative effects on the landscape and visual resource. Both the scale and location of the turbines are considered appropriate and sit well with the accepted pattern of development to the south of the Loch Tay area. Furthermore, whilst there would be acknowledged changes in the local landscape, these would be completely reversible and temporary given the turbine's anticipated life span.

7 Ecology

7.1 Introduction

This section considers the potential impacts on ecology and biodiversity from the twin turbine proposal at Hill Park.

Policy Guideline 4 (Biodiversity) of the PKC Supplementary Planning Guidance is relevant for the development and outlines the requirement for ornithological considerations:

Wind energy proposals will be supported except in locations where they would have a significant adverse impact on biodiversity. In instances where there is uncertainty about the potential impact, a precautionary approach will be adopted. Where impacts can be mitigated, a Section 75 Agreement may be required to ensure habitat enhancement work is undertaken elsewhere for habitat loss or loss of raptor hunting ground at the wind farm area.

Ecology reports have been undertaken and are summarised in this chapter. The associated maps can be found in the A3 figures included at Vol 2. It is considered that due to the nature of the site comprising a commercial Forestry plantation, which is the subject of a Management Agreement with Forestry Commission Scotland which will involve, over time, significant commercial cropping, biodiversity interest at the site is limited.

The turbines would be sited in a young part of the plantation. Fig 9 below details the extent of proposed tree felling required in the short term in order to site the two turbines and the age of the existing trees.

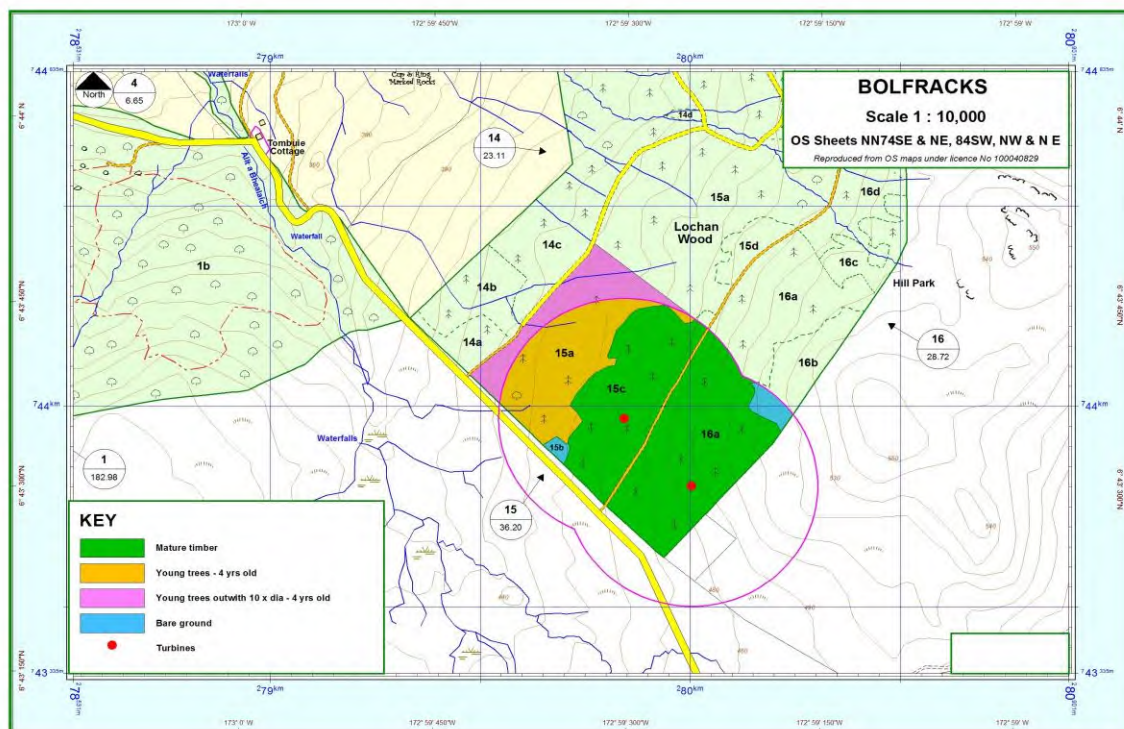


Fig 9: Extent of woodland area to be cleared

Site Context

The location of the proposed turbines at Hill Park would be immediately to the east of the Kenmore to Amulree road and 3km sw of Kenmore. The turbines would be situated within the southern extremity of a large woodland block that extends along the upper slopes above the south side of Strath Tay and Loch Tay. This is a 35 year old forestry plantation nearing commercial maturity and the turbines would be positioned 50m in from the forest edge. To the south and west the land is dominated by open heather moorland managed for grouse and sheep while to the north and east the ground is dominated by forestry.

To the north-east of the turbine locations is the summit of Hill Park (557mAOD). A small lochan used for fishing lies 250m south-east of the proposed turbine locations. A small upland burn drains the lochan and flows northwards passing within 300m of the proposed turbine locations before descending rapidly towards Kenmore.

At a location 1.5km north of the turbine locations, the road leading from Kenmore to Amulree (and which will be used for access to the site), crosses the same burn at Tombuie Cottage. At this point there is an intake for the Bolfracks run of river hydro scheme. The woodland is enclosed by a standard 2m high deer fence which appears to be in good order.

The most significant designated area within 5km of the application site is the River Tay Special Area of Conservation (SAC) which includes Loch Tay and the Rivers Tay and Lyon. The loch and rivers are designated primarily for their clear water with aquatic vegetation and poor to moderate nutrient levels. Qualifying species include river, brook and sea lamprey, salmon and otter. Apart from the otter (see later), the proposed location of the turbines and associated construction works would have no effect on this designated site.

One other designated site lies within 5km of the proposed turbine and that is Bolfracks wood. Bolfracks Wood SSSI lies 5km north east of the proposed turbines and is designated for its slope alderwood, which is a rare and decreasing habitat and is one of only three sites in West Perthshire. The wood is classed as Ancient Woodland of semi-natural origin. The proposed turbines would have no effect on this designated site

Surveys and Assessment of Effects

Phase 1 Habitat Survey

A Phase 1 Habitat Survey was carried out by Skorpa Consultancy in April 2013 and has been included as an appendix to this report. It indicates there are no major ecological constraints to the design of the proposed development, although the potential presence of a number of species would warrant further on-site survey immediately before construction.

Red Squirrel

Red squirrel is a European Protected Species (EPS) and has been recorded within the woodlands in and around Kenmore on many occasions according to the National Biodiversity Network (NBN). Indeed, the local school in Kenmore runs a squirrel feeding programme and many squirrels have been witnessed in the village. The presence of red squirrels was detected in the woodland where eaten pine cones were evident at several locations.

As red squirrels may occupy the part of the conifer woodland where the new turbines would be sited a survey for squirrel dreys should be undertaken immediately prior to the felling of any trees required to be removed as a consequence of this development proposal. Only if a red squirrel drey

were found in the vicinity (<250m) of any proposed construction works would a licence from SNH to operate closer than the 250m be required. Such surveys can be completed at any time of year, although it would be desirable to undertake in winter when visual sighting is easier.

Mountain Hare

This species has been listed as a priority species for conservation action under the UK Biodiversity Action Plan. According to the National Biodiversity Network (NBN) this species is not present within the 10km square of the turbine. However, from the Surveyors personal observations many mountain hares have been noted in the past in and around the hill road leading between Kenmore and Amulree. Mountain hare pellets were discovered within the woodland area during walkover survey but were confined to an area of newly planted conifers immediately north of the proposed turbine site. It is unlikely however, that mountain hares would move into the 35 yr old conifer plantation as there is no vegetation on the ground on which to graze. In time, however, once the area around the turbine is cleared of trees and a natural grass/heath mix regenerates, then it could be possible that mountain hare would successfully colonise this area.

Bats

In any rural location a number of bat species are likely to be present. The nearest potential roost site to the application site would be the house and outbuildings at Tombuie Cottage 1km to the north-west. However bat activity is likely to be limited due to the location of the proposed turbines within an area of mono culture woodland, and the high altitude. As a consequence it is not considered that species population, habitat or distributions are likely to be adversely affected by the proposal.

Otters

Otters are an EPS and have been recorded (NBN Gateway) on the lochan 250m south of the turbine locations and on the burn leading down to the Strath. The author has recorded many otters on the river Tay and Loch Tay 3km north of the proposed turbine locations. The conditions in the month of April - first heavy snow and then much melt water made a survey of the burn and lochan unsafe. Nevertheless, otter spraint were found along the dam wall on the lochan. However, due to the recent spate, no evidence of otters was discovered on the burn. No Holts were found either side of the bridge crossing the burn to the north of the site, Due to the limited period of construction it is unlikely that associated traffic would adversely affect otter populations in the area.

Pine Martin

Pine martens are an EPS. However, the NBN was ambiguous for this species and was mixing up records for pine marten with those for otters. Nevertheless, the author of this report has encountered pine martens in the woodland north and east of the proposed turbine locations. Although no evidence was found on site walkover there is a possibility that pine martens use the sitka spruce woodland within which the turbines would be located. Prior to construction and any tree removal an extensive search for pine marten dens would be undertaken to ensure that breeding dens are not disturbed. If a den was found within a specified distance - 500m - then a licence would be secured from SNH.

Badgers & Water Voles

The NBN includes no records for these EPS species in the area. No evidence was found on site walkover and the author of this report believes them to be absent from the woodland.

Nesting Birds

To minimise disruption to nesting birds tree felling would be restricted to the winter months.

Access Tracks and Site Restoration

The relevant sections of this Report have set out the strategy for remediating the effects of development at the site using removed and stored first-dig material. In this way maintenance of habitat through continuity of species mix can be assured using soils and grasses/plants sourced from the immediate environs.

7.2 Conclusion

The development does not directly affect any internationally or nationally designated sites of conservation importance, such as Sites of Special Scientific Interest or protected sites under the EC Habitats Directive sites e.g. Special Areas of Conservation.

From the Phase 1 habitat survey with site walkover, as detailed above, it can be concluded that the proposal would give rise overall to a *low* risk of adverse effects on ecological interests at the site.

8 Ornithology

5.1 Introduction

This section considers the potential impact from the proposed wind turbines on local and regional ornithology, during operation.

Policy Guideline 5 (Cumulative Impacts on Ornithological Interests) of the PKC Supplementary Planning Guidance is relevant for the development and outlines the requirement for ornithological considerations:

Wind energy proposals will be encouraged except in locations where they will have a significant adverse cumulative impact on birds. A commercial or community wind farm, cluster or turbine is unlikely to be acceptable where it has not been demonstrated, to the satisfaction of the Council, that the cumulative impact on birds will be slight or not significant. Where there is uncertainty about the potential impact, a precautionary approach will be adopted.

Site Context

There were no Schedule 1 Wildlife & Countryside 1981 (and later amendments) birds found on the site. There were no Annex 1 EC Birds Directive species recorded during the survey.

8.1 Surveys and Assessment of Effects

The birds most likely to be at risk in this location are woodland nesting birds. To minimise disruption to nesting birds tree felling would be restricted to the winter months as a mitigation measure.

Ground nesting birds such as skylark, red grouse and meadow pipit are likely to occupy heathland surrounding the site but construction activity in this area would not result as works would be confined to the woodland area. As a consequence there would be little impact on the general habitats and vegetation which supports these species and the proposed works would be unlikely to affect these species in the long term.

Given the scale of the development and location, impacts on birds, with mitigation, is likely to be *negligible*.

New planting of shrubs and hedgerows is planned under current Forestry Commission conditions for replanting felled areas.

8.2 Conclusion

As detailed in the above, there would be an overall *negligible* impact on ornithological interests at the site. Some habitat mitigation is possible by controlling the timing of any necessary works of tree felling and through the replanting of clear felled areas.

9 Hydrology

9.1 Introduction

This section considers the potential impacts on hydrology and water resources from the proposed additional wind turbine during construction and operation.

Policy Guideline 7 (Water resources) of the PKC Supplementary Planning Guidance is relevant for the development and outlines the requirement for water considerations:

Wind energy proposals will be encouraged except in locations where there is likely to be a significant adverse impact on the water environment generally and water supplies in particular and where such unacceptable adverse effects cannot be mitigated to the satisfaction of the Council. Where appropriate, measures which mitigate any identified adverse effects on groundwater will be incorporated into a planning condition.

The construction and operational phases of the proposed development have the potential to affect the hydrology within the localised area, including draining patterns and watercourses. Although hydrological issues are expected to be relatively minor at this site, the risk of pollution of watercourses, groundwater bodies and private water supplies within or near the site should be assessed and appropriately mitigated where required.

9.2 Guidance

This assessment has been undertaken primarily using a qualitative assessment based on professional judgement and statutory and general, national and local guidance as follows:

- SEPA Policy No.19 - Groundwater Protection Policy for Scotland
- SEPA Pollution Prevention Guidance Notes (PPG)

Other sources of information consulted included:

- Ordnance Survey map data at 1:10k and 1:50k scales;
- Groundwater Vulnerability Map of Scotland;
- Hydrogeological Map of Scotland;
- Perth & Kinross Council for private water supplies;
- Scottish Water for information on public water supply infrastructure;

9.3 Methodology

The methodology of this assessment is based on the collection of data from published material as well as consultation with statutory bodies: SEPA, Perth & Kinross Council and the landowner's knowledge of the site.

The assessment methods used to assess the impacts on the water environment at the proposed development are described as follows:

- All hydrological information is gathered and potential receptors that may be at risk from the proposed development are identified;

- Each activity of the development including construction, operation and decommissioning is assessed for the potential to create a pollution risk;
- Proposed mitigation measures and preventative actions are detailed.

9.4 Baseline

Surface Water

All mapped watercourses were identified as a constraint, and a minimum 20m buffer was applied to protect watercourses from disturbance and potential effects on water quality during construction.

Access tracks are positioned to minimise disruption to drainage ditches within the site.

All hydrological features within 1km are shown below in Figure 9.

Principal watercourses identified in the site are as follows:

- 1) watercourses within the central part of Hill Park;
- 2) small watercourse at the southern end of the plantation which crosses the Glen Quaich road;;

In addition, a review of the SEPA flood risk map for the application site confirms that it is not located within a designated flood risk zone.

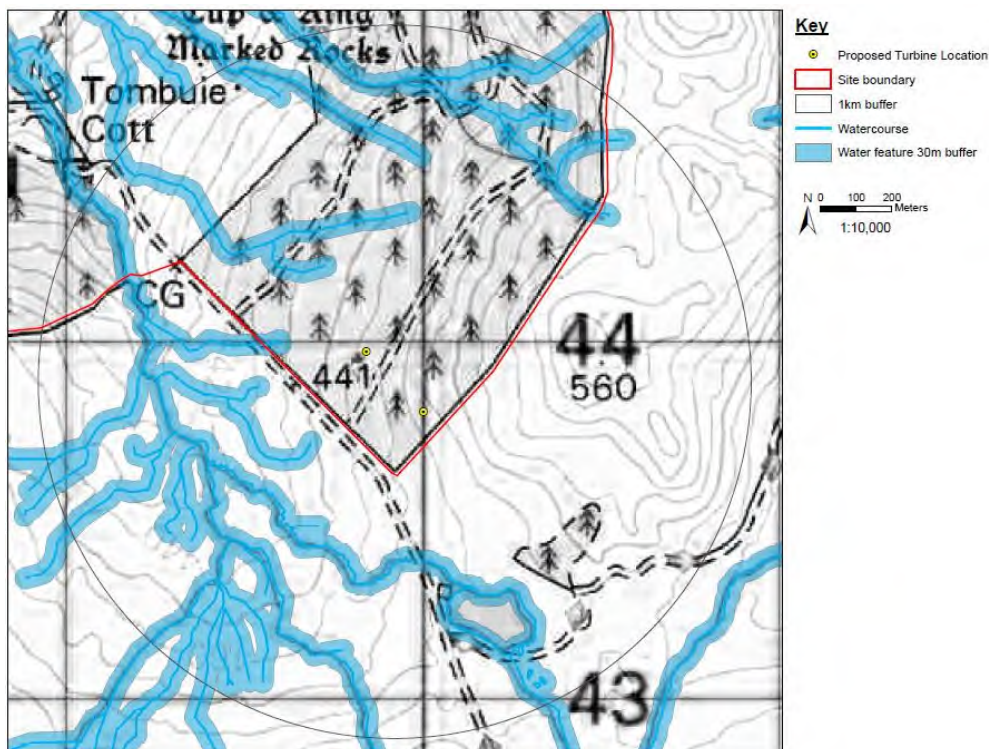


Figure 10: Water features (as shown on OS 1:10k map)

Groundwater

Groundwater is present under most landforms, although some geological formations are more permeable than others.

A review of the Groundwater Vulnerability Map of Scotland indicates that the site is located within an area of *low to medium vulnerability of groundwater in the uppermost aquifer* and should therefore not pose any major problems on groundwater aquifers in the general area.

Consultation was carried out with Perth & Kinross Council's Environmental Services to better understand the presence of any private water supplies that may be in use within the development area. The response indicated that although there are records of private water supplies in the area, none are within 1km of the site location and are therefore unlikely to be the cause of any concern.

There are no known wells within 1km of the development site and therefore no further assessment on groundwater aquifer's was carried out.

Hydrogeology

Any groundwater within the area may be used as a source of water and is also important for irrigation within agricultural areas. The hydrogeology at the site has been assessed to determine whether any groundwater at the site is at risk of contamination.

A review of the Hydrogeological Map of Scotland indicates that the site is primarily made up of impermeable Precambrian rocks.

Precambrian - The crystalline basement offers little potential for groundwater storage and transport other than in cracks and joints which may be associated with tectonic features or near surface weathering. Groundwaters emanating from springs are generally weakly mineralised, although bicarbonate concentrations may attain 120mg/l

Water Resources

Consultation carried out with Scottish Water indicates that none of their assets would be affected by the proposed development.

9.5 Assessment & Significance of Potential Effects

Surface Water

With regards to the risk of pollution during the install phase, trenching activities during construction have the potential to introduce new drainage pathways at the site and produce silt laden run-off. There is also the risk that drainage ditches could be contaminated by chemical spillages at the site. These risks can be mitigated during the construction phases, as shown in Table 4.

Groundwater

There are no known private water supplies within the area that utilise groundwater from the site. Due to the limited extent of ground disturbance proposed the risks that any useable groundwater would be contaminated as a consequence of the proposed works is therefore considered to be *negligible*.

In order to protect the bedrock from entry of contaminants, mitigation measures will be put in place to deal with possible (however unlikely) concrete displacement within the bedrock.

The turbine foundations will be dug to a depth of up to 1.4 metres, and it is considered unlikely that groundwater would be present at this level. This will be examined during the ground truth works and will determine whether disposal of groundwater at the foundations is necessary.

9.6 Site Design - Effects & Mitigation

Mitigation measures for this development primarily focus on preventing the pollution of watercourses and groundwater aquifers.

Environmental Construction Best Practice

As with any construction project, there is a risk of a pollution spill that may flow into nearby watercourses or sink into the water table and contaminate groundwater. These risks can be dealt with satisfactorily through use of best practice construction methods.

Environmental damage, as a result of the inadequate storage or misuse of any substance hazardous to health, will be avoided by adopting the principal contractor's COSHH procedures.

During construction, any oil, fuel or other chemicals will be stored in a suitable temporary storage area. Oil and lubricants will be stored within the confines of a bund and or bunded container. Locks will be fitted to all fuel storage tanks or containers. There shall be a nominated trained person to oversee refuelling and delivery and to ensure there is no spillage.

In event of potential risk, emergency procedures will be prepared and pollution control equipment provided, such as "spill kits" and absorbent granules. These will also be carried by appropriate vehicles on site. The above arrangements shall be adopted both during the construction period and the operational phase of the development.

9.7 Conclusion

The majority of potentially significant negative impacts on water quality are only predicted to occur in the short-term, through potential increased sediment run-off and potential pollution/spillage during the construction phase.

It is therefore anticipated that the adoption of best practice management and control procedures by all site personnel and the implementation of the mitigation measures outlined, will reduce the amount of overall risk. Mitigation measures undertaken throughout the construction phase will be carried out in accordance to relevant SEPA guidance and legislation, along with on-going discussions with these groups.

Table 4: Potential Environmental Mitigation Measures

	Drainage System	Why?	Where?	Incorporated Features?	Restrictions
1	Open Ditches	To utilise naturally occurring ditches.	Primarily within hags as the natural watercourse usually exists along the base at one side.	Baffles can be introduced to reduce flow velocities where necessary. Straw bales can also be used in addition to these to reduce flow. Regular maintenance of straw bales required to remove silt build up behind the straw bales.	None.
2	Pipelines	To allow water to be transferred in areas where access track construction would dissect watercourses or where flows need to be channelled to other watercourses.	In areas where the natural watercourse would intersect the location of proposed access track construction or into adjacent hags/ditches where no construction is taking place and the water can be further diverted to a settlement lagoon.	Base boarding or stone pitching can be implemented beneath the resurgence of the pipeline to minimise the effect of erosion caused by the water.	None.
3	Flow reduction by sumps and filtration	To reduce fast flows and thus reduce the scale of potential erosion. Material within the water flow can also be collected effectively.	At frequent intervals where heavy material collection is a problem, primarily in areas which have been freshly disturbed. Areas with high flows and/or steep gradients are more susceptible to material problems and the locations of these traps should cater for this.	Silt build up shall be monitored weekly and the sumps will be cleaned to ensure that the maximum available volume is maintained. Removed material will be disposed of as appropriate. Filtration methods include installation of straw bales and baffles. These two methods will reduce the flow rate and trap silt. Sump depth will be attained by the extent of flow and volume of water within the drainage ditch.	Sumps will be inspected on a weekly basis and cleaned out at regular intervals to maintain their effectiveness. Sumps can only be constructed within the hags/ditches. No peat can be excavated to accommodate sumps.
4	Settlement Lagoons	To act as a temporary storage area whilst the suspended solids settle before dispersing the cleansed water into the natural vegetation or onto a further watercourse	Mainly at the foot of hags/ditches to collect water which has travelled down within them. The size of the lagoon is dependent on the allowable area within the hag/ditch. It would also be advantageous to position lagoons nearby the areas set for turbine construction.	Constructed above or below ground using straw bales and/or suitable clays. The bales will be held in place with wooden stakes and the lagoon lined with a Terram membrane to assist in filtration. A clean stone base may be incorporated to hold the Terram in place. Silt build up shall be monitored weekly and the lagoons will be cleaned to ensure that the maximum available volume is maintained.	To be in agreement with the Environmental Clerk of Works (ECOW) and geotechnical advisor prior to draining. Settlement lagoons shall be inspected and regularly cleaned out
5	Pumping	The primary use of pumps will be to dewater the deep excavations formed for the turbine bases.	Turbine base and anemometer locations.	None.	Pumped water may be fed to a settlement lagoon or "Siltbuster" prior to any further discharge. The resulting clean water will only be allowed to discharge into vegetation where agreed with the ECOW, otherwise it must be released into a watercourse via straw bales to minimise the risk of bed scour.
6	SiltBusters	To remove silt from water that is heavily contaminated.	Primarily turbine base locations, however their site wide use may be applicable if necessary.	None.	None.

10 Noise

The following noise assessment was undertaken by Realise Renewables, for the turbine proposals at Hill Park, Bolfracks Estate.

5.1 Introduction

The erection of a two WTN 250 kW wind turbines on 30m free-standing towers are proposed. This turbine model incorporates a geared mechanism, with a cut-in wind speed specified as 4 m/s.

The wind turbines would be installed on an area of cleared woodland at grid references 280003, 743802(T1) & 279843, 743970(T2). This is a location remote from many dwellings. The nearest residential Noise Sensitive Receptors (NSRs) would be:

- H1: Tombuie Cottage - 900m to NW.

A site plan illustrating the relative location of the proposed wind turbine and the nearest NSR is contained in Figure 11. It can be noted that there are no other residential dwellings in the site surroundings.

A glossary of acoustic terms is contained in Noise Appendix 1.

10.1 Guidance

Principles and guidelines for the environmental assessment of wind turbine related noise are given in the report entitled ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms', based on the findings of the Working Group on Noise from Wind Turbines.

This document describes a framework for the measurement of wind farm noise and suggests noise limits to offer a reasonable degree of protection to any neighbouring properties, whilst, at the same time, bearing in mind the significance of wind farm development as a renewable energy source.

The following table shows the recommended noise limits for wind farm related noise at the nearest noise sensitive properties in line with ETSU-R-97.

Period	Lower absolute noise limit L _{A90,10min} (dB)	Relative noise limit L _{A90,10min} (dB)
Daytime (07:00–23:00)	35 – 40	5 dB(A) above background noise
Night time (23:00–07:00)	43	5 dB(A) above background noise

Note: At low wind speeds (where background noise is expected to be quieter), the lower absolute noise limits apply, until the background noise has risen to within 5 dB of this level (as wind speed increases) wherein the relative noise limits come into force.

Turbine Noise Emissions

The noise emission data for a 'WTN 250kW wind turbine has been provided by the manufacturer of the wind turbine, Wind Technik Nord, and is contained in Noise Appendix 1 of this report for reference.

The data illustrates that the sound power level (L_{WA}) of the wind turbine varies from 93.8 dB(A) to 100.0 dB(A), respectively, under wind speeds ranging from 5 metres per second to 10 metres per second (measured at 10m height).

With reference to information above and noise emission data contained in Appendix 2, noise emissions associated with the wind turbine have been calculated at the nearest NSRs as detailed in the following sections. The calculations have been made on a wind speed of 10m/s using Resoft Windfarm software. A 2dB margin of error has been added to manufacturer's noise data to allow for any measurement uncertainty.

10.2 Assessment

A minimum 500m buffer from residences would normally be adopted in order to minimise impacts on residential amenity, including noise disturbance. As identified the nearest dwelling is more than **900m** from the site.

The map below (Figure 11) shows the noise contours based on the sound power level of the two WTN 250kW wind turbine at 10m/s wind speed. The LA90, 10min measurement that is recommended in ETSU-R-97 for the assessment of wind farm noise has been adopted in these figures.

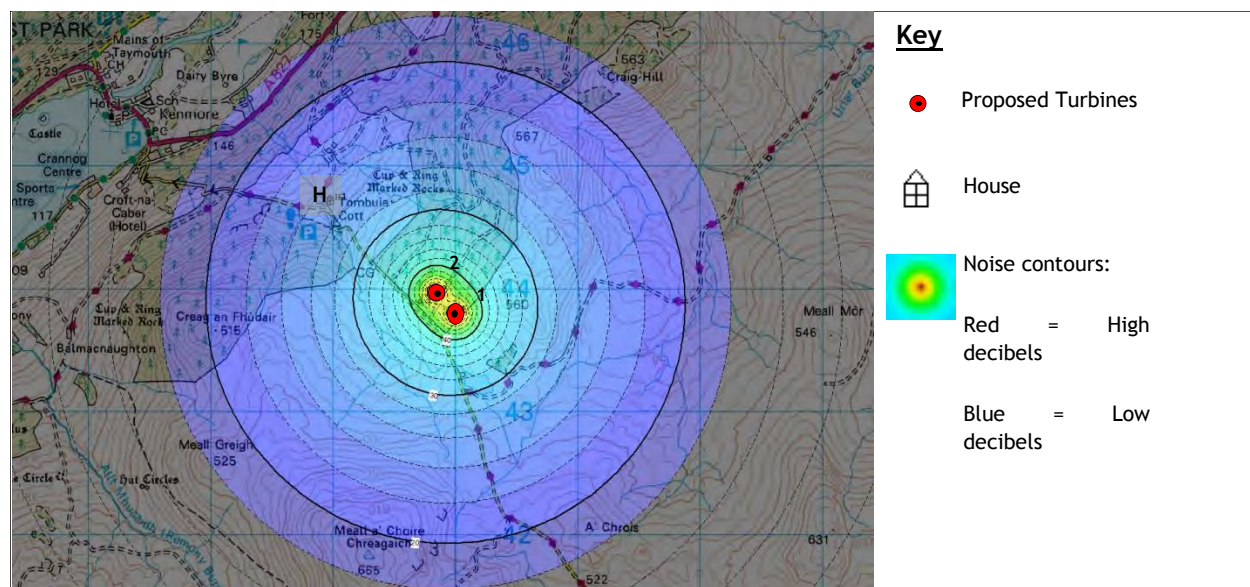


Figure 11: Approved and proposed wind turbine location with nearest NSRs

The maximum predicted noise with this derived sound level (from both turbines) would be 24.75dB at Tombuie Cottage. As predicted sound levels are within recommended ETSU-R-97 lower absolute noise limits, the WTN 250kW turbine would be expected to meet noise criteria, without the need for any noise monitoring.

ETSU-R-97 recommends that where there are reasonable separation distances between NSR and wind turbines will result a simplified noise condition should be incorporated. If the noise is limited

to an LA90, 10 min of 35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity and so background noise surveys would be unnecessary.

Noise Propagation

The propagation calculations have been undertaken in accordance with the recommended methods in the article entitled “Prediction and Assessment of Wind Turbine Noise” published in the Acoustics Bulletin of March/April 2009.

The noise prediction shown above (in accordance with ISO 9613-2) uses the following input parameters:

- The atmospheric conditions have been assumed as 10°C and 70% RH
- A 2dB margin of error has been added to manufacturers noise data to allow for measurement uncertainty

In addition to this, it should be noted that the noise prediction shown above uses ground factors of 0.5 with a 4m receptor height.

10.3 Conclusion

On the basis of the predicted noise levels detailed above and in Figure 12, it is evident that noise emissions due to the operation of the proposed wind turbines will not exceed the 35 dB L_{A90, 10min} threshold, up to a wind speed of 10 m/s (in accordance with the simplified assessment methodology contained in ETSU-R-97) at the nearest NSR (Tombuie Cottage).

As a consequence it can safely be concluded that noise emissions associated with the operation of the proposed wind turbines at Hill Park would be unlikely to cause a material loss of amenity to the occupants of nearby residential properties.

NOISE APPENDIX 1 - GLOSSARY OF ACOUSTIC TERMS

Appendix A – Glossary of Terminology

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A-1
Sound Levels Commonly Found in the Environment

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

Acoustic Terminology

dB (decibel) The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2×10^{-5} Pa).

dB(A) A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

L_{Aeq} Defined as the notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

L_{10} & L_{90} If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index when describing traffic noise.

L_{Amax} The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{Aeq} noise level but will still affect the noise environment.

NOISE APPENDIX 2 – SOUND POWER LEVEL DATA



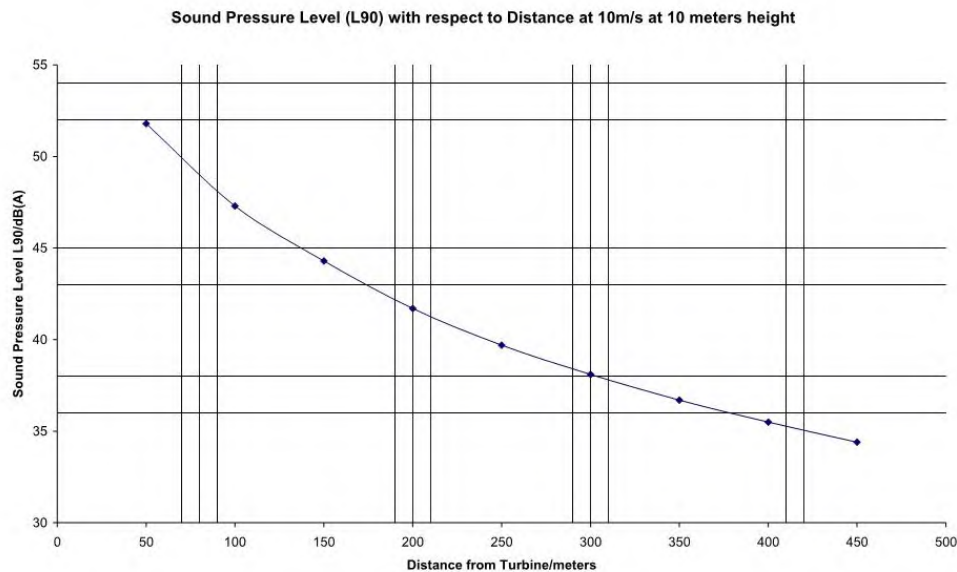
Attenuation Noise Specifications WTN 250 kW @ 10m/s

ISO 9613-2 Calculation

The sound power level is determined for an acoustic reference wind speed of 10 m/s at 10 m height and all noise values are 90% exceedance values (L90) designed to show compliance with ETSU-R-97 limits. Calculation height above ground level is 4 meters and a general ground attenuation factor of 0.5 was used

Wind Speed at 10m above ground	Sound Power Level/dB(A)
5m/s	92.8
6m/s	95.1
7m/s	97.4
8m/s	99.8
9m/s	99.9
10m/s	100.1

* Analysis of the noise shows there are no clearly audible tones or impulses



At a distance of 420 meters the analysis shows that the noise level at 10m/s wind speed will decrease to 35dB (A) L90

Analysis was carried out using WindPro 2.7; version 468 software which is based on the ISO 9613-2 UK code.

11 Shadow Flicker

5.1 Introduction

This section considers the potential impacts of shadow flicker on local properties from the operation of the two wind turbines proposed at Hill Park.

5.2 Guidance

The Scottish Government online guidance for Onshore Wind Turbines (updated 03/10/2011), addresses shadow flicker:

Under certain combinations of geographical position, time of day and time of year, the sun may pass behind the rotor and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as 'shadow flicker'. It occurs only within buildings where the flicker appears through a narrow window opening. The seasonal duration of this effect can be calculated from the geometry of the machine and the latitude of the potential site.

Where this could be a problem, developers should provide calculations to quantify the effect. In most cases however, where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), 'shadow flicker' should not be a problem. However, there is scope to vary layout/reduce the height of turbines in extreme cases.

11.1 Impact Assessment

In this case the shadow flicker assessment guidance would require any turbine to be located at least 300m (10 x rotor diameter of 30m) from the nearest residential dwelling to avoid adverse effects.

There are no residential dwellings within the 10 x rotor diameter distance from the proposed additional turbine location, the closest residence being Tombuie Cottage approximately 900m away, to the north-west.

11.2 Conclusion

Based on the above, it has been demonstrated that there would be no adverse effects arising from Shadow Flicker at the nearest residential property.

12 Other Considerations

12.1 Aviation & Radar

Ministry of Defence

The site is in an area of low priority for military low flying and consequently less likely to raise flight safety concerns. In addition consultation with MOD has confirmed that development of up to a height of 40m at this site would be likely to have no interference with any military radar station, whilst development up to a height of 60m could however have interference towards Leuchars ATC radar.

Based on consultation and further detailed investigation of potential terrain shielding at the site, it is considered that the two turbines could be accommodated at the site, provided that:

- the turbine is below 47m to tip height
- the turbine is installed no higher than 490m AOD

Adhering to both these factors will ensure that MOD requirements are satisfied and interference of Leuchars ATC radar coverage would not be likely.

Civil Aviation

The NATS self-assessment maps have been reviewed and turbines of the height proposed are shown as 'not visible' on the maps and, as a result, no concerns are anticipated. In addition to this, consultation with NAT's confirmed that the site is outside the consultation zones for Aberdeen, Edinburgh and Glasgow Radars. Dundee Airport does not have a NAT's radar, so is of no concern.

The site lies outside of the safeguarding zone of Dundee Airport (approximately 59km distant) and Perth Airport (approximately 38km distant). Accordingly red obstacle lighting to the wind turbines would not be required due to the limited height of the proposed turbines - ie less than 150m - CAA Policy and Guidelines on Wind Turbines (CAP 764 2013).

12.2 Telecommunications & Television

Telecommunications

Ofcom Check

Search Radius 500m at Centre NGR NN8000343802 NO Links Identified. Search includes an additional 500m of requested radius.

Links	Company	Contact	Telephone	Email
-------	---------	---------	-----------	-------

Search Radius 500m at Centre NGR NN7984343790 NO Links Identified. Search includes an additional 500m of requested radius.

Links	Company	Contact	Telephone	Email
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Further consultation was carried out with Airwaves Solution but there is a substantial charge for this check and we have no reason to believe this link to be of concern, due to the limited size and scale of the proposed addition at the site. If an objection is raised the work will be undertaken to confirm that this link does not affect the site and/or the proposed development.

Joint Radio Company (JRC) and Atkins Global were contacted as they operate telecommunications links which can be affected by turbine installations. Responses have been received from both organisations confirming that no interference is predicted at the sites.

Television

In the unlikely occurrence of any adverse effects with regards to television interference, these can be resolved through technical solutions and will be agreed between the applicant and Council, if appropriate.

Possible mitigation measures may include:

- Upgrading of existing receivers;
- Replacement of receiving aerials;
- Retuning of television receivers;
- Provision of satellite/digital services to affected households.

12.3 Existing Infrastructure

A Linesearch request was submitted for the proposal to identify the proximity of existing infrastructure in the vicinity of the proposed turbine. A response was received that no further actions were necessary.

12.4 Public Access

There are no core paths or promoted public access routes within the application site itself.

The short length of new access track into the Hill Park plantation has been carefully selected to avoid any direct or indirect effects on walkers, horse riders or cyclists active within the area. Any indirect effects from construction or decommission activities would be short lived as the construction programme at Fig x illustrates.

12.5 Conclusion

It has been assessed that all listed items as part of this chapter are unlikely to cause any operational problems, for both the smooth running of the turbine project and local residents' considerations.

As demonstrated in the aviation assessment, impacts on aviation interests will be minimal and no concerns are expected from MOD at the application height of 45m to blade tip.

13 Safety

13.1 Introduction

Safety is an important consideration for any development project, as there are a number of potential hazards for the general public and contractors.

The greatest hazards occur during construction, repair works and decommissioning of turbines but the risks will be minimised by ensuring work is done by competent staff, following established methodologies which have been risk assessed in advance of the work. During the construction period, public access will be prevented and the site supervisor will ensure that safety is paramount.

13.2 Legislation & Safety

A nominated Health and Safety officer will be allocated to the site during construction phases and all works will be carried out in accordance with CDM regulations.

The wind turbine being considered for use at Hill Park, Bolfracks is designed and manufactured to industry standard and will withstand the weather extremes which can arise in Scotland.

13.3 Construction Best Practice

During the construction, decommissioning and operational phases; relevant guidance and standards as well as the SNH document 'Good practice during wind farm construction', will be adopted to maintain site safety and for the protection of ecology and hydrology interests.

All personnel working on the site will be formally inducted, covering topics including health and safety, environmental protection and pollution prevention.

Prior to commencing works, a detailed health, safety and environmental plan would be submitted to ensure a safe and coordinated approach to delivering the project.

14 Conclusions

This report establishes that the proposal for two wind turbines on land at Hill Park, Bolfracks Estate would comply with all the relevant national and local development policies and policy guidelines, and together with other specific assessments, demonstrates all key planning considerations have been satisfactorily addressed.

National and Local planning policy is supportive of the principle of wind energy development, whilst highlighting the relevant planning and environmental criteria that will need to be considered and satisfied for individual development proposals.

The application site is situated within an area of no landscape designations indicating a potential to accommodate suitably designed and scaled wind energy development. The Planning Approval granted by the Council last year for an identical proposal (twin 45mhigh WTN turbines) at Urlar immediately to the south-west of the site confirms that this is a location where the Council has been able to be satisfied that suitably designed and scaled turbine proposals can indeed be effectively accommodated in this landscape. The proposal at Hill Park uses the same turbine, the same twin configuration and is the same height.

This report has assessed all factors relevant to this *medium scaled wind* energy proposal. It has been shown through the LVIA that the landscape has the capacity to absorb the proposed development without any adverse effects on character or sensitive receptors. Whilst this is a location where there is considerable wind development interest it has been shown that cumulative impacts would be satisfactorily addressed by this proposal.

The proposal at Hill Park, Bolfracks is estimated to generate enough electricity to supply the equivalent of 242 households per year and displace the equivalent of up to approximately 490 tonnes of CO₂ emissions per year from conventional forms of electricity generation. It will make a significant contribution to achieving renewable energy targets and is considered to be a good example of a small-scale wind energy scheme which can be satisfactorily accommodated in the proposed location. It has been shown that the proposal provides opportunity to contribute towards realising Scottish Governments committed environmental objectives for Scotland, (set out through The Climate Change (Scotland) Act 2009 and the 2020 Routemap for Renewable Energy in Scotland), for a low carbon economy based on a strong renewable energy sector.

A sustainable economic development project is proposed which would bring positive benefits to the local economy and to the environmental stewardship of the Bolfracks Estate. It would realise the local ownership of energy production; represent an opportunity to maximise Scotland's own security of energy supply and would also make a meaningful contribution towards the realisation of Scotland's ambitious renewable energy targets.

The proposal is in compliance with both the Council and Scottish Governments overarching aims and objectives for wind energy projects and as such, it is requested that consent be granted for the development.

Appendix 1 - Visualisations Quality Statement

With reference to Perth and Kinross Council 'Guidance for the Preparation and Submission of Photographs and Photomontages to illustrate the impacts of Wind Energy Development; for inclusion in Planning Applications and Environmental Statements', the following points are noted:

1) ZTV Production Software

All ZTV figures have been produced in Resoft Windfarm software, then presented in a final GIS map using ESRI ArcView.

2) Photograph Information

- a) The photographs were taken by Realise Renewables, using a full-frame fixed 50mm lens. The Camera used was a Canon 5D Mark II.
- b) The ISO rating, colour/white balance adjustments, date, time, aperture 'f' stop and shutter speed are all included in the metadata which is stored with each photograph. This is viewable in most photo viewing software. As an example, double clicking on a photograph in Microsoft picture viewer and then selecting to view more details will show all the metadata. Additionally, all metadata can be viewed in the image properties.
- c) The height of the photography was at 1.5m unless specified otherwise.
- d) The photography conforms to the fields of view described in the SNH Good practice guidelines table (pg. 167).
- e) The electronic photograph images with associated metadata have been provided on CD ROM.

3) Photomontage Standards

The photomontage and wireframes have been produced using Resoft Windfarm software. The terrain dataset used was Ordnance Survey's Landform Panorama.

All photomontages are single frame only and have been produced as per specification, along with points taken from SNH Good Practice Guidelines and Highland Council's Visualisation Standards for Wind Energy Developments.

All photomontages have been produced for viewing in A3, at a correct viewing distance of 500mm.

Appendix 2 - Council Response

1) Perth & Kinross Council screening response - dated 13/02/13



Bolfracks Wind Turbine

Landscape and Visual Impact Assessment Report

Realise Renewables

September 2013

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Tables

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Figures

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1.1 Introduction

This chapter presents the Landscape and Visual Impact Assessment (LVIA) for the proposed Bolfracks wind turbine development. The purpose of the assessment is to determine the significance of impact (or effect) of the proposed development on the landscape and visual resource of the area.

LVIA's are separate, although linked, procedures. Landscape effects relate to the direct physical changes to the fabric or individual elements of the landscape. They also relate to the potential indirect changes to the wider patterns of landuse, landcover and the arrangement of landscape features which determine the character of the landscape. Visual effects relate to the potential changes in views and perception of the proposed development on visual amenity within a Zone of Theoretical Visibility (ZTV). This LVIA is based on the provision of scheme details and supporting graphic material from Realise Renewables together with a site visit.

1.1.1 The Proposed Development and the Basis for Assessment

The LVIA is based on the development of two turbines up to the maximum tip height of 44.5m. These turbines would be located within the West Highlands of Perth and Kinross to the southeast of Loch Tay.

The proposal would also include a control building, an access track, underground cabling, crane pad and temporary construction and laydown areas. These elements would also require some localised tree felling on the edge of the coniferous plantation woodland, where the turbines are located. The felling arrangements as part of this proposal are described in more detail in Section 7.1. The assessment of these associated elements is considered, where relevant to the assessment of effects upon the landscape and visual resource.

1.2 Methodology and Approach

1.2.1 Scope Guidance

This appraisal has been completed in accordance with the Scottish Natural Heritage (SNH) guidance on the "Natural Heritage assessment of small scale wind energy projects which do not require formal Environmental Impact Assessment (EIA)", March 2008 in accordance with the screening response of November 2012, from Perth and Kinross Council (PKC). Although the proposed turbines are now less than 50m in height, the LVIA has provided more detailed information in line with SNH guidance for turbines over 50m in height, to address requests from PKC during June 2013. It includes:

- Consultation with the planning authority over the scope of the assessment;
- Production of a Zone of Theoretical Visibility (ZTV) map;
- Visualisations and photomontages, focusing on key viewpoints;
- Assessment of sensitivity, magnitude of change and residual effects;
- Map of all wind turbine proposals in the public domain within the study area;
- Assessment of all applied, consented or constructed proposals within 30km of the application proposal

Data Sources and Guidance

The LVIA will follow relevant standards and guidance, principally set out in the Landscape Institute and Institute of Environmental Management & Assessment's (IEMA) Guidelines for Landscape and Visual Impact Assessment, third edition, published in 2013 (GLVIA). The assessment also draws upon other sources of information and guidelines. These are detailed in section 1.8.

1.2.2 Overall Approach

The LVIA methodology is set out below. It describes that the extent and significance of landscape and visual effect is a product of the baseline sensitivity or susceptibility of the landscape or visual receptor and the magnitude of change from the existing situation. Effects can be permanent or temporary in nature depending on the type of development in question and nature of the receiving environment.

Defining Baseline Sensitivity

GLVIA indicates that the sensitivity landscape receptors should consider the susceptibility and value attached to the receptor. It describes this as *"the ability of the landscape receptor (whether it be overall character or condition of a particular landscape type or area, or an individual element and /or features, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation"*.

The identification of sensitivity therefore needs to be considered in relation to the nature of the change, i.e. the type and scale of development proposed within a particular area or type of landscape and the association and tolerance of the identified landscape or individual contributing elements thereof, to that change. This will include consideration of parameters including the value placed on the landscape; the pattern, scale and complexity of elements; the consistency of the strength of character; the 'attractiveness' or scenic quality; its contribution to the wider landscape and its robustness, or the degree to which change can be absorbed (defined by, for example, its diversity or openness).

Visual sensitivity is dependent upon *"the susceptibility (of different receptors) to change in views and visual amenity they experience at particular locations"*. It includes a combination of parameters, including the activity / occupation / pastime of the receptors at particular locations; the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations. It will comprise the location, relative focus and orientation of views, the quality or importance of the existing view; the principal or secondary interest in that view and the ability of the view to accommodate the type of development and the frequency and duration of the view.

Landscape and visual sensitivity can be considered on a graduated scale from High, Medium or Low, or by a combination of categories. The categories are defined below. It is important to note that some landscapes and/or views may exhibit characteristics that fall within more than one sensitivity level and as such professional judgement is required when determining sensitivity and the rationale for assigning a specific sensitivity should be explained in the assessment.

Table 1.1: Landscape / Visual Sensitivity

Sensitivity	Receptor	Definition
High	Landscape	Typically small scale, enclosed landscapes with complex landform and a mosaic of habitat and landcover where turbines would be out of scale. Irregular patterns of enclosure and traditional settlement pattern with a general absence of contemporary structures giving a sense of remoteness and wilderness. Well used recreational areas with extensive views within/into/out of area to distant horizons; Landscape of distinctive character with strong cultural associations
	Visual	Residents with principal/direct views; Visitors to scenic viewpoints/ beauty spots with views constantly available; Long distance footpath routes with prolonged viewing opportunities; Important landscape features with physical, cultural or historic attributes; locations likely to attract high numbers of people with a primary interest in the view and the landscape.
Medium	Landscape	Medium scale landscape with a combination of open and more enclosed landform. Contemporary structures/development are an element of views either within/into/out of area. Rural working landscapes containing evidence of human activity with strong characteristics, relatively intact.
	Visual	Residents and visitors with secondary, distant views away from key focus from houses/curtilage/valued view; Footpaths with fleeting/transient/ peripheral views. Other tracks; roads used for tourism or journeys of a recreational nature, locations likely to attract moderate numbers of people. Viewers with a moderate interest in their surroundings e.g. users of outdoor recreation areas
Low	Landscape	Large scale open/exposed landscapes with smooth regular flowing landform and limited variation in landcover in which turbines would not be out of scale. Contemporary structures such as pylons, masts and other infrastructure evident. Visually contained by landform or vegetation with limited views within/into/ out of area with near horizons. Limited cultural associations and little if any recreational or amenity function.
	Visual	Viewers with a passing interest in the view e.g. Views from industrial or commercial buildings or areas; roads used primarily for commercial travel and/or commuting; views from trains, locations likely to attract low numbers of people. visitors engaged in an occupation/pastime, rather than focused on the wider landscape

Defining Magnitude of Effect

Once the sensitivity to change is established, the magnitude of the anticipated effects needs to then be identified. Magnitude is defined within GLVIA as “a combination of the scale, extent and duration of an effect” and is categorised as High, Medium, Low or Negligible or as a combination of two categories to provide a more detailed, intermediate group e.g.. High to Medium or Medium to High. Effects can be direct, where they involve a physical change to a defined element or characteristic of the landscape, or indirect, where effects are secondary and perceived on the wider pattern of elements or on visual amenity, away from the proposed site.

Criteria for defining the level of magnitude are identified below. Magnitude of Visual change is derived from definitions listed in the Visual Assessment of Wind Farms: Best Practice (University of Newcastle 2002). The magnitude will also be influenced by the spatial extent of the effect, the duration of the effect and the degree to which the effect is reversible.

Table 1.2: Magnitude of Effect

Magnitude	Receptor	Definition
High	Landscape	Very obvious or notable change in the balance of landscape characteristics; ranging to particularly intensive change (i.e. a dominating effect) over a more limited area. The proposal would be a prominent feature in the make-up of the character area
	Visual	DOMINANT: Major change to the make-up / balance of the view Commanding, controlling, striking, sharp, unmistakable easily seen.
Medium	Landscape	Whilst notable or obvious, the change would not fundamentally alter the balance of the landscape characteristics
	Visual	PROMINENT/CONSPICUOUS: Moderate changes in the nature of the view. Noticeably distinct, catching the eye or attention, clearly visible and well defined.
Low	Landscape	Very small change in the balance of overall characteristics, such that post development the change would be discernible but the underlying pattern of characteristics would remain similar to the baseline condition.
	Visual	APPARENT: Minor change in the nature of the view. Evident but lacking sharpness of definition, not obvious, indistinct, not clear, obscure, blurred indefinite. Discernible but the underlying nature of the view and composition of elements would remain similar to the baseline (limit of potential visual significance).
Negligible	Landscape	Change, which whilst occurring, would not influence the wider landscape character and/or would be barely discernible, perceptible or legible, approximating to a "no change" situation
	Visual	FAINT/SLIGHT: Very minor change to the view, weak, not legible, near limit of acuity of human eye. Change would be barely discernible, approximating to the "no change" situation.

The assessment will provide rationale for the criteria selected and will highlight any modifying factors, such as the potential for weather conditions to restrict views; the principle aspect of the landscape and visual receptor; the mobility or static nature of receptors, the proportion of any particular character / view affected, the potential for the development to attract the eye or to become a focal point in the view/landscape, to the detraction/benefit of competing visual elements and the presence/absence of other comparable features such as existing wind turbines.

Establishing Extent (and Significance) of Effect

Once the sensitivity and magnitude are classified, they are considered together to assess the extent of effect and its potential significance. This is done using the assessment in the matrix in Table 1.3 to guide the determination of significance. This assessment considers effects of Moderate and above to be significant in EIA terms.

Table 1.3: Extent of Landscape / Visual Effect

		SENSITIVITY (of the landscape or visual receptor)		
		Low	Medium	High
MAGNITUDE (of the anticipated effect upon the landscape / visual resource)	High	Moderate	Moderate/Major	Major
	Medium	Minor/Moderate	Moderate	Moderate/Major
	Low	Minor	Minor/Moderate	Moderate
	Negligible	Negligible	Negligible	Negligible

The prediction and extent of effect cannot always be absolute and can only be defined in relation to each development and its location. It is for each assessment to determine the assessment criteria and the significance thresholds, using informed and well-reasoned judgement supported by thorough justification for their selection, and explanation as to how the conclusions about significance for each effect assessed have been derived. Consequently, it is important to recognise, that some judgements on the extent of effect, may fall between one or more level. As a result, professional judgement is required when determining the specific extent of effect and the rationale for assigning a particular judgement should be explained in the assessment. In addition there may be points where there is no effect. Where this is the case it will be detailed in the assessment

1.2.3 Consultation

The scope of assessment for the LVIA, including the study area radius, methodology and the proposed number and location of representative viewpoints were established through liaison with Perth and Kinross (PKC) in June 2013.

1.3 Baseline Conditions

The proposed wind turbine lies within the Central Highlands, at around 2.5km to the southeast of Kenmore and 7.5km southwest of Aberfeldy. The host landscape is elevated moorland with forest plantation. It is located to the southeast of Loch Tay. Whilst considerable areas exhibit a large, open character, human influence is also evident, including the new Beauly to Denny overhead transmission line and large wind farms within the same moorland context to the east.

1.3.1 The Landscape Fabric of the Site

The landscape fabric of the site consists of coniferous forest plantation woodland, at varying age and height. To the south and west the site is surrounded by open moorland, with further areas of large conifer plantation woodland covering much of the area up to 2-3km to the north and east. Although the landcover is presently coniferous forest plantation, the area around the proposed turbine locations at the southwest corner of the forest, would be felled to allow the construction and efficient operation of the proposed turbines. The remaining area of forest would then be felled and replanted in rotation, as part of the existing forest management plan, up to 2022.

The proposed turbines are sited at approximately 465m and 485m AOD. Landform then rises to the south and east with local high points of 560m AOD at Hill Park and Craig Hill and up to 665m AOD at Meall a Choire Chreagaich at 2km to the south. Landform then continues above 400m AOD for approximately 1km to the north before it falls away abruptly to a low point of 120m AOD around Kenmore.

The landscape fabric of the site is considered to be of Medium sensitivity to change on account of its simple large scale, frequency and coverage of moderately valued elements.

1.3.2 Landscape Policy and Designation

Within the study area, a number of designated landscapes exist (Figure 1). The nearest is the National Scenic Area (NSA), at Loch Rannoch and Glen Lyon, between 6-30km to

the northwest. The baseline sensitivity to the type of change is summarised below in table 1.4.

Further NSA's lie at Loch Tummel (10-22km to the north) and at River Tay, Dunkeld at (17.5-28km to the southeast). However, visibility would be largely absent from these areas, restricted to an isolated high point on the southwestern fringe of the Loch Tummel NSA. The River Tay (Dunkeld) then lies a considerable distance from the ZTV with no potential for effects on the character and setting of the area and no further assessment is therefore considered necessary.

There are also locally defined Areas of Great Landscape Value (AGLV) present within the study area, also shown on Figure 1. However, there would be no notable visibility from these areas within 30km and therefore no further assessment is considered necessary.

Also of note to the LVIA, there is a Garden and Designed Landscape (GDL), at Taymouth Castle, which combines with the Conservation Area (CA) at Kenmore. These lie at a closer, but lower contained point in the surrounding landscape at approximately 1.5-4km to the northwest. These are of note to the assessment as they lie within 5km where there could be potential for effect on the landscape setting (its visual and contextual relationship with their surroundings). The baseline sensitivity to the type of change is summarised below in table 1.4. For detailed information on the historic features refer to the Cultural Heritage Section.

1.3.3 Landscape Character Resource

The character of the landscape context is defined within the Tayside Landscape Character Assessment (LCA), SNH Review No.122, LUC, 1999. This report has provided a valuable benchmark for assessing landscape character. However, it should be noted that since publication, for some areas of the landscape, the baseline character is now very different. This is often as a result of (wind) energy developments and other infrastructure. Where the character has been modified in such cases, this has been noted within the assessment

Within the study area and of relevance to the proposed development, three principal Landscape Character Types (LCTs) are present (Figure 2) within the principal areas of the ZTV. The site lies within the Highland Summits and Plateau LCT, with the linear, incised, low lying Highland Glens LCT and the Highland Glens with Lochs LCTs stretching from east to west, at 2km to 30km, to the north and 3km to 30km to the south.

Beyond these LCTs, the general distance, orientation and separation from the proposed site, would reduce the degree of visibility with no significant effect on the character of any other LCTs anticipated. Visibility would also be notably restricted from most key areas of the Highland Glens and Highland Glens with Lochs LCTs beyond 5km. A summary of the condition and sensitivity to change is recorded below for the host LCT.

The site landscape character type - Highland Summits and Plateau LCT

The proposed turbine is located on the fringe of the Highland Summits and Plateau LCT. This LCT extends to define most of the study area, within 20km. The key characteristics or relevance to the proposed development are:

- areas of upland separating the principal glens.

- the West Highlands comprise distinct summits and ranges, separated by fault line lochs ; the hills are sharply defined and often craggy
- vegetation patterns closely reflect altitude and exposure and include heather, grassland, blanket bog and arctic alpine plant communities; variations reflecting the underlying geology
- most of the area managed as open moorland
- little or no settlement
- some extensive plantations
- one of the remotest and wildest landscapes in the UK

Since publication of the LCA, the LCT has been modified with the introduction of notable infrastructural elements such as large scale wind farms and the new Beaulay to Denny overhead power line. These are both focused within and across the host section of the LCT within the Craigvinean Forest range, to the north of Glen Quaich. This has inevitably modified the forces for change in this section of the LCT and the susceptibility of the LCT to the type and scale of wind development proposed. Further proposals should however, consider this emerging pattern. This should include relating turbines to broad, open spaces, so the size of the turbine appear inferior in scale while avoiding more distinctive, variable elements and undeveloped areas where the sense of remoteness is more apparent or creating focal points where none existed before. Key to this as defined in the forces for change in the LCA, is *"how can natural topography and landcover be exploited to screen and backcloth wind farms"*

The sensitivity to the type of change proposed is therefore considered to be Medium in the context of the proposed two turbines in the within the Craigvinean Forest section of the LCT. This also accounts for the open scale, unenclosed character and moderate value of the key characteristics.

Surrounding Landscape Character Types

The sensitivity to development from the surrounding LCTs will depend on the composition and value of the key characteristics, their location and the related tolerance to the nature of the change, as detailed in section 1-1.

The Highland Summits and Plateau LCT is bordered and incised by low lying, Highland Glens, where the transitional fringes of the Highland Summits and Plateau strongly define and enclose the lower areas with characteristic topographical variation and extensive vegetation patterns.

Of note to the proposed development, a Lower section of the Highland Glens LCT (1c) stretches from east to west at around 2km to the northeast of the development site. A second LCT, of The (Mid) Highland Glens with Lochs (2c) then continues along the Tay to the northwest. The principal characteristics include a settled, broad floodplain with substantial and varied woodland and large estates (1c) and the large scale landscape of (2c) with an expansive loch, large enclosing mountains and extensive woodland. Views are therefore channelled typically along the glens forming corridor views with strong enclosure from the immediate transitional glen sides and highlands summits.

The baseline sensitivity of these principal LCT's is detailed below in Table 1-4. This also takes into account the changing character as a result of renewable energy and infrastructure developments, referenced above.

Non Designated Natural Heritage Areas

The SNH Policy Statement No 02/ 02 'Strategic Locational Guidance for Onshore Wind Farms in respect of the Natural Heritage', has identified different areas of natural heritage sensitivity across Scotland. The proposed development site would be located within a small area of a defined zone that combines the Low to Medium zones (Map 5 within the guidance). This represents the relative levels of opportunity and constraint in the area, a combination of these zones will provide an area with only some minor sensitivity to the type of development, where *'...development could be acceptable in natural heritage terms, so long as they are undertaken sensitively and with due regard to cumulative impact'* and *'by careful choice of location within these areas there is often scope to accommodate development of an appropriate scale, siting and design in a way which is acceptable in natural heritage terms'*. Zone of medium sensitivity then stretches over highland areas to the south and a high linear zone stretches along Loch Tay to the Northwest.

This does not necessarily imply the absence of natural heritage interest, but with good siting and design it should enable such interests to be respected.

Wild Land and Core Areas of Wild Land Character

In the wider study area there are areas of higher natural heritage sensitivity. They include Core Areas of Wild Land (CAWL) character and Search Area's for Wild Land (SAWLs). They include areas of uninhabited and relatively inaccessible countryside where the influence of human activity on the character and quality of the environment is minimal and the character of these areas is to be safeguarded from development under Scottish Planning Policy. The wildness qualities include physical attributes such as perceived naturalness; lack of modern artefacts; little evidence of contemporary land uses; rugged or otherwise challenging terrain; inaccessibility and extent of area. Perceptual qualities include sense of sanctuary or solitude; Risk or sense of awe or anxiety; arresting or inspiring qualities and fulfilment from physical challenge

The new Core Areas are shown on Figure 1. With regard to the proposed wind farm the nearest CAWL lies at approximately 2km to the southwest. It stretches across the sweeping highland summits connected with Upper Almond (CAWL 9). There are no other CAWL's within 5km, but of potential note to the proposed turbine scheme lie CAWL 13 Ben Lawers, CAWL 11 Breadalbane – Schiehallion at 8km to over 30km to the northwest, with stretching from 15km to the northwest. While CAWL 12 Lyon – Lochay and CAWL 14 Rannoch - Nevis – Mamores and CAWL 15 Cairngorms are also present they all lie away from any notable areas of visibility

During the early stages of assessment, the LVIA considered the potential effects on these areas. It concluded that while there would be isolated points of visibility from the lower fringe slopes of CAWL's 9, 13 and 11, the proposed turbines would be seen as a separate, distant point and as a smaller element to the existing influences of other notable wind farm influences in the prevailing context. This would modify the susceptibility/sensitivity of the Core Area of Wilderness to the proposed change and the physical and perceptual qualities from these points.

Landscape Baseline Summary

Table 1-4 highlights the principal LCT's and policy areas that have potential to be affected by the proposed turbines and summarises their sensitivity to change.

Table 1-4: Landscape Baseline Conditions

Character Type (SNH Review Vol 114)	Distance min/max)	Sensitivity to change
Highland Summits and Plateau LCT - Craigvinean Forest	0-30km	Medium
Lower Highland Glens LCT (1c)	2-30km	Medium - High
Mid Highland Glens with Lochs (2c)	1.5-30km	Medium - High
Designated Landscape		
Loch Rannoch and Glen Lyon NSA	6-30km	High
Upper Almond (CAWL 9)	2-28km	High
Ben Lawers(CAWL 13)	8-30km	High
Breadalbane – Schiehallion(CAWL 11)	8-30km	High
Historic Landscape (landscape setting)		
Taymouth Castle GDL	1.5km	High
Kenmore CA	2km	High
Application Site		
Landscape Fabric	0km	Medium

1.3.4 Visual Baseline Conditions

The purpose of the visual assessment is to identify from where and how it may be possible to see any part of the proposed development and to determine how this would affect the visual resource. The extent of visibility is firstly considered within the ZTV and then principally from a number of representative viewpoints that cover a broad range of sensitive viewpoints and represent both the different types of view and different types of viewer (ie visual receptors). Integral to this process is the need to define the sensitivity to change of the visual resource, which provides the baseline, against which the assessment of effects can be made.

Extent of Visibility

The computer generated ZTVs to hub height (30m) and blade tip height (44.5m) (Figures 3 and 4) identify areas of the landscape, from which the proposed wind development may theoretically be visible. This is in line with the Visual Representation of Windfarms, Good Practice Guidance (SNH). However it is important to note that ZTVs are tools for assessment and these are limited in several ways, including that, bare ground ZTVs make no allowance for any screening effects that may arise due to existing vegetation or built development (Figure 3). To limit this exaggerated impression, the significant areas of existing woodland have been modelled into the terrain model to provide a more realistic impression of anticipated visibility, using woodland areas identified on the 1:25k OS base (Figure 4). The real extent of the ZTV would also be influenced further, by the subtle variations of landform and landcover that are not covered by the digital terrain modelling data (DTM).

Key Visual Receptors

A range of visual receptors and receptor groups can be expected to be affected by the proposed development from both static and sequential points. These receptors would include, but not be limited to residents, motorists and those visiting the area for recreational, amenity and tourism purposes. The extent of the effect upon certain groups would then vary according to their level of sensitivity to the type of

development. For ease of presentation the assessment identifies three key groups: (1) local residents; (2) motorists; and (3) tourists /recreational visitors to the area. The baseline sensitivity of these groups is summarised in Table 1-1.

1.3.5 Representative Viewpoint Appraisal

The viewpoints presented within this report, represent a range of visual receptors and view types, and have been selected following SNH Guidance. The viewpoint photomontages have also been taken from a range of publically accessible points, to cover a representative range of viewing distances, elevations and orientations, with different viewing experiences. The micro-siting of viewpoints in the field has sought to maximise an open and clear view where available, whilst remaining tied to an identified 'key receptor group' for the viewpoint in question. A total of 14 viewpoints were selected for assessment and agreed in consultation with PKC (Figure 3). The sensitivity to change is summarised in Table 1.5. The viewpoints shaded out represent views where no theoretical visibility would be present, as evidenced by the wireframes. As a result, no detailed narrative assessment is considered necessary for these viewpoints. The remainder are considered in detail in Section 1-5.

Table 1-5: Representative Viewpoint Baseline

V P	Location	Grid Ref	Distance of View	Key Receptor Grp Static*/Sequential**	Sensitivity to change
1	Schiehallion	271474, 754696	13.6km	Visitors – Hill Walkers at summit viewpoint*	High
2	Ben Lawers	277143, 745596	16.8km	Visitors – Hill Walkers at summit viewpoint*	High
3	Kenmore Bridge	263614, 741716	3.2km	Residents /Visitors*	High
4	Black Rock, Drummond Hill	276309, 745742	4km	Visitors*	High
5	Taymouth Castle	278489, 746492	2.9km	Visitors*	High
6	Adjacent to B846 North of Coshieville	277588, 749774	6.2km	Motorists**	Medium - Low
7	Rob Roy Way	280187, 742866	1.2km	Visitors – walkers / sequential **	High -Medium
8	Fortinghall to Beinn Dearg path	273585, 748498	7.7km	Visitors – walkers / sequential **	High -Medium
9	Meall Greig	267409, 743794	12.5km	Visitors – Hill Walkers at summit viewpoint*	High
10 a	Adjacent to Glen Quaich road North of site	279106, 744510	0.91km	Motorists**	Medium - Low
11	Beinn Ghlas	262465, 740301	17.8km	Visitors – Hill Walkers at summit viewpoint*	High
12	Meall Tairneachan	280750, 754364	10.4km	Visitors – Hill Walkers at summit viewpoint*	High
13	Creag an Sgliata	277009, 739831	5km	Visitors – Hill Walkers at summit viewpoint*	High
14	Meal Nam	281985, 737165	6.9km	Visitors – Hill Walkers at summit viewpoint*	High

1.4 Construction Effects

Whilst there would be a degree of visual disturbance arising from construction activity, the proposals aim to minimise disturbance to the land itself and careful thought has been given to the detailed siting of the turbine in order to minimise potential disturbance to the physical landscape and the effect on sensitive views.

There would be some direct temporary effects on the landscape fabric of the site as the result of tree felling and ground disturbance to construct short sections of the access track, along with cabling, temporary construction areas and the turbine bases. While this would include some felling of mature plantation trees and would change the extent of mature tree cover, this would only be temporary as the area will be replanted. It would also be seen as part of the expected rotation within a commercial forestry block. The overall change to the extent of plantation, in the long term, would be very limited in extent as only the immediate footprint of the turbines would not be replanted. Additional areas of recent plantation to the north, which are now 10 years old, assist in maintaining the extent of maturing forest and would help to visually contain the proposal from more sensitive points to the north.

Good site management and reinstatement of woodland cover across the proposed site with pine species would minimise the extent and duration of these effects further. The magnitude of effect on the landscape fabric would, therefore, be Medium during construction and Low during the lifetime of the proposed development. When combined with a Medium baseline sensitivity to the proposed change, the extent of effect is judged to be Moderate during construction and Moderate to Minor in the long term. All effects on the fabric are also considered to be substantially reversible in the long-term, following de-commissioning of the turbine.

With regard to the wider landscape character of the study area, it is anticipated that there would be no significant effect on the key characteristics of the surrounding LCTs until the later stages of construction when the turbines are more visible from these areas. These operational effects are dealt with separately in Section 1.6.

Mitigation Measures

The principal opportunity for incorporating mitigation into the scheme has evolved, during the scheme development, where a number of turbine options were considered. These are considered in the Landscape chapter.

In relation to landscape and visual issues, the final size, location and turbine number as has been the subject of a number of design iterations and refinements. It has sought to lower the heights by up to 20m to restrict visibility from any notable central areas of the nearest designated landscapes, including Taymouth Castle GDL and Kenmore and their landscape setting in the glen area. Further consideration was also given to limiting imposition on sensitive receptors groups at these points, particularly residents and Visitors. Thought was also given to the potential relationship to other existing and consented turbine developments and providing a comparable development to the nearest consented scheme at Urlar to the west. In this context, the turbines would often appear alongside similar elements in the open moorland plateau which would help to integrate the turbines, primarily within its immediate moorland setting, whilst limiting the potential for visual complexity and overlap in the landscape.

1.5 Operational Effects

During the operational lifetime of the turbine, the principal landscape and visual effects would come from the presence of the turbine and the movements of the blades. There would also be some activity connected with site works required for maintenance but these are unlikely to be a significant factor. The judgements made regarding the landscape effects above are based on the operational effects of the development as these would be the more enduring, although still temporary, effects given the anticipated operational lifespan of the wind turbine.

1.5.1 Predicted Effects on Landscape Character

Highland Summits and Plateau LCT

The proposed wind turbine would be located within the Highland Summits and Plateau LCT. This large LCT extends to cover most of the immediate landscape context to the south and east. It is therefore the LCT most susceptible to the effects of the proposal.

As the ZTVs indicate (Figures 3 to 4), the potential for extensive visual exposure within the LCT, is relatively low. The principal zone of visibility would be contained within the immediate plateau slopes to the south of the proposed turbines up to 2-3km. It would also stretch to isolated high points on the north and east fringe of the Glen Almond area, at around 6km. More extended visibility would then be found from separate elevated sections of the LCT to the north of the Highland Glens LCT and Highland Glens with Lochs LCT at Taymouth. At these points it would stretch across the south facing plateau slopes and summits, principally at 7-12km to the northwest, but also at an isolated hill summit within forestry, at 4km at Black Rock. Elsewhere within this expansive LCT, the visual exposure would be limited. This is due to the prominence of the characteristic landform and coniferous forest plantations.

Where the turbines would be visible, they would typically be seen across and within the elevated open moorland and against a simple palette of characteristic elements including open heather, grassland craggy hills and blanket bog with occasional lochans and coniferous forest plantations. This open, sweeping character would help to anchor the turbines into their immediate setting where they would often be backclothed by higher terrain and appear diminutive or inferior to the scale of the surrounding landscape.

While some parts of the LCT demonstrate a large, open and remote character, much of the character of the LCT, between 4km and 15km to the east of this proposal, has been modified by the introduction of other tall built artefacts in the form of overhead power lines and large collections of wind turbines. These provide a clear, prominent and expansive focus within the same section of the LCT as the site context. As a result the proposed turbines would not provide a new built element or focus in the LCT, but would usually be seen as a modest addition to the existing influence turbines in the host section of the LCT across the Craigvinean Forest range. The turbines would not, therefore, fundamentally alter the balance of existing characteristics within this part of the LCT. Nor would they affect the more remote, higher valued points beyond this section of the LCT towards Meall nam Fuaran, and at separate sections across the Ben Lawers and the Schiehallion range, where the absence of human artefacts is more pronounced and the perception of remoteness greater.

The magnitude of change on the characteristics of the LCT is therefore considered to be Medium - Low within 2-3km to the south side and Low to Negligible elsewhere.

When combined with a baseline sensitivity of Medium across the Craigvinean Forest area, the extent of effect on the Highland Summits and Plateau LCT is judged to be locally Moderate to Minor up to 2-3km to the south side. Elsewhere, and from the large majority of the area, the extent of effect would be Minor to Negligible, with no significant effect on the general scale, simplicity and wider pattern of key characteristics of this LCT.

Effects on Surrounding LCTs

The ZTVs (Figures 3 and 4) indicate that visibility would be limited from key sections of the surrounding LCTs. This includes the nearest LCT's to the north, along the Highland Glen LCT and Highland Glen with Lochs LCT. At these points the characteristic steep sided glen slopes and the substantial woodland patterns connected with the estate and forestry areas, enclose and curtail views to the south. Views are then channelled along the glen from east to west and notably, away from the proposed development. This is evidenced in the photomontages from viewpoints 3 and 5.

Where the bare ground ZTV indicates some visibility, this largely occurs within coniferous forest areas and it would not normally be available with views more typically heavily filtered through characteristic woodland and forest, this would also include the area around Coshieville, as demonstrated by the assessment from Viewpoint 6.

Visibility would, therefore, be restricted to an isolated, linear patch along a minor road on the south side of Drummond Hill, within the eastern tip of the Highland Glens with Lochs LCT. From this point, the proposed turbines would just be evident with sporadic views to the blade tips, sitting substantially beyond the sweeping landform skyline and the settled glen areas. The turbines would, therefore, lie away from the focus and orientation of key characteristics across the lower lying Highland glen LCTs so as not to significantly impose on them. As a result there would be no significant effect on the characteristics of the surrounding LCTs. This would also be the case for other separate highland glen LCTs to the south along Glen Quaich, where there is limited potential for notable visibility and effect on character. This is detailed in Table 1-6.

1.5.2 Landscape Designation

There are a number of landscape designations within the study area, but none exist within the general vicinity of the development proposal across the Craigvinean Forest range section of the Highland Summits and Plateau LCT, to the north of Glen Quaich.

Most key sections of the designated landscapes also lie beyond the principal areas of the ZTV (Figures 3 and 4). While there would be some potential for some visibility from isolated summits within the southeastern fringes of the Glen Lyon NSA, the views from these summits would be substantially towards areas outside the NSA and to a clearly separate landscape context to the southeast, which is already defined by expansive wind turbine and pylon influences. As a result there would be no significant change in the view from these areas and no potential for significant effects on the qualities for which the areas have been designated. The proposed turbines, located at a clearly separate point and distance in excess of 5km, would not therefore undermine the integrity or setting of this area. This is also the case for associated CAWLs at Ben Lawers and Breadalbane – Schiehallion and also from the Upper Almond CAWL to the south. This is summarised in table 1-6.

1.5.3 Effects on Historic Landscape (Setting)

The majority of historic features within the study area are connected with the surrounding lower lying glen areas to the north. Given the strong change in elevation they are generally well contained from the north and south. They also lie mostly beyond the principal zones of the ZTV (Figures 3 and 4). This includes the nearest CA at Kenmore. This CA, would be substantially screened from the proposed development by the notable and abrupt change in landform and forest cover, directly to the south of Kenmore. As a result there would be limited potential for effect on views from within the CA including the The Square and Kenmore Bridge to the north. This is also the case for key central areas of the castle grounds connected with neighbouring Taymouth Castle GDL. It would also be the case for the further CAs beyond 5km at Aberfeldy and Forthingall and the GDL at Castle Menzies.

The landscape setting of Kenmore and Taymouth GDL lies *"nestled within a dramatic landscape"* as illustrated in the Kenmore Conservation Area Appraisal. This wider landscape includes the Glen Lyon Hills which form a prominent backdrop with Loch Tay. This is most apparent in views north from Craig Hill and other points to the south. At these points there would be no views of the turbines and no effect.

The appraisal also describes that to the south the *"ground rises steeply up the Braes of Taymouth, but altogether more gently than the north"* and also to a lower elevation. Further elements that define the backdrop and setting include the water of Loch Tay, the landscaped grounds of Taymouth castle and the *"part planted, part natural trees"*, which define the lower highland glen slopes. Further glimpsed views of the proposal are also available from The Crannog centre and the tree lined Aberfeldy road to the south and the Main of Taymouth riverside to the north.

While the proposed turbines would appear in an isolated part of the ZTV from the north at Black Rock (as evidenced by Viewpoint 4 and Figure 8), the turbines would be observed as small, partially screened elements, within the contrasting plateau moorland landscape to the rear of the CA and GDL. At this point the potential for effect on the setting within the highland glen would be limited with the balance and scale of elements within the CA and associated GDL, remaining intact as noted in sensitivity description in the Appraisal. This is reinforced by the separate LCT defined in the Tayside LCA.

The underlying nature, setting, sense of place and historical focus of these areas would thus remain unchanged with the turbine proposal being physically, culturally and visually separate, within a discrete elevated moorland area. The potential effects on these designated areas are discussed in more detail within the Cultural Heritage section of the report.

1.5.4 Landscape Effects Summary

The landscape assessment has shown that effects on the landscape and its characteristics would be limited in extent and significance. Where they do occur they are limited to the immediate open sections of the Highland Summits and Plateau LCT within 2-3km to the south. While the turbines would create a new focus at these isolated points, they would typically be seen as minor elements in the underlying context, with no adverse affect on the wider scale, focus, integrity or setting of key features. Where visible from most other points they would relate to a strong and expansive wind turbine influence and it would not, therefore, be out of place with other

elements in similar sections of the landscape. Although they sit slightly closer to the low lying highland glen areas to the north, the turbines would clearly sit in context of the larger scaled open moorland of the Highland Summits and Plateau LCT. They would also be largely screened from key central areas of designated landscapes, where more sensitive characteristics exist with no effect of the balance of elements or no notable encroachment upon those areas. This is summarised below in table 1-6.

Table 1-6 - Landscape Effects

Character Type	Sensitivity to change	Magnitude of Effect	Extent of Effect
Highland Summits and Plateau LCT	Medium	Medium-Low(2-3km south) Low -Negligible	Moderate - Minor Minor - Negligible
Lower Highland Glens LCT (1c)	Medium - High	Low -Negligible	Minor - Negligible
Mid Highland Glens with Lochs (2c)	Medium - High	Low -Negligible	Minor - Negligible
Designated Landscape			
Loch Rannoch and Glen Lyon NSA	High	Low -Negligible	Minor
Upper Almond (CAWL 9)	High	Low -Negligible	Minor - Negligible
Ben Lawers(CAWL 13)	High	Low -Negligible	Minor
Breadalbane – Schiehallion(CAWL 11)	High	Low -Negligible	Minor
Historic Landscape (landscape setting)			
Taymouth Castle GDL	High	Low -Negligible	Minor
Kenmore CA	High	Low -Negligible	Minor
Application Site			
Landscape Fabric	Medium	Medium Low	Moderate - Minor

1.5.5 Principal Zones of Theoretical Visibility

As the ZTVs (Figures 3 and 4) illustrate, the extent of visibility would be fairly limited. This is due to the notable variation in landform surrounding the site. The principal zones of visibility would be concentrated across the immediate elevated sections of the Highland Summits and Plateau LCT that surrounds the site for around 2-3km, to the south. It then stretches across separate areas of the highland summits and plateau at 7-12km, principally to the northwest. Notable landform variation and significant areas of coniferous woodland plantation would then restrict visibility from much the surrounding area, particularly along the much of the lower lying settled glen areas. Further points of extended visibility would then be gained from highland summits, but at these distances the proposed turbine would be seen within wide open panoramic views which take in a range of varied landscapes. At these points they would typically be seen alongside existing wind turbine influences in the same landscape context. Visibility would then be restricted from much of the remaining Highland Summits and Plateau area to the east and the straths to the north and east.

1.5.6 Representative Viewpoint Effects

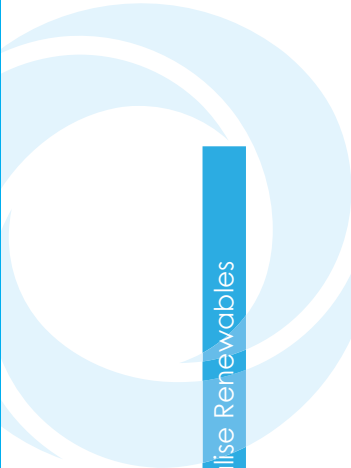
The analysis detailed in Table 1-7, refers to the potential visual effects on the 14 representative viewpoints identified in the baseline. To help understand the assessment, reference should be made to the existing panoramas, wireframes and photomontages (Figures 5 to 18), which illustrate the existing and proposed view.

Table 1-7 – Visual Effects

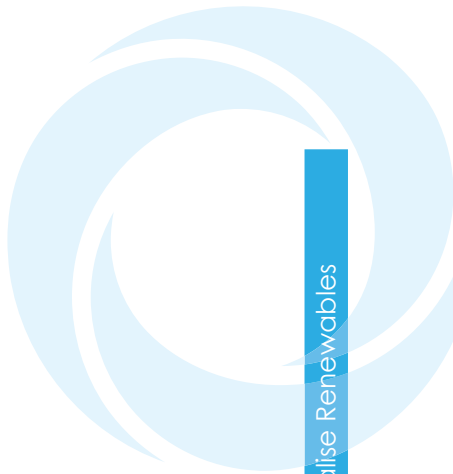
No	Location	Sensitivity	Visual Effect	Magnitude of Visual Change	Extent of Effect (Represented)
1	Schiehallion	High	From this notable high point to the north of the proposal, a sharply descending panorama extends south over the highland summits that lie to the northeast of Loch Tay. The view south then continues, towards the forested glen areas and on to a separate area of elevated highland plateau. This area defines the mid to far distant view and contains the view further. In this context the proposed turbines would be faintly visible at a low point, within the distant plateau moorland, with the tower, hub and blades just apparent in a small forest plantation (Figures 5). From this point the two turbines would be seen alongside two large expansive wind farms, which sit at a more prominent elevated point within the same moorland context to the southeast. They would not, therefore, provide a new element in this section of the view and would only form a very minor change to the nature of the view at a separate distant point. The would also sit well below the skyline and away from more notable distinctive landform elements that are connected with the higher valued areas to the southwest and west. This would provide a Low to Negligible magnitude of visual change and result in no more than a Minor extent of visual effect, when combined with the sensitivity of the key receptors of recreational visitors. This would also be the case for other elevated points at this distance and orientation to the north, including the eastern fringes of the Loch Rannoch and Glen Lyon NSA and associated CAWL.	Low - Negligible	Minor
2	Ben Lawers	High	At this notable summit to the east of the proposal, a range of panoramic views stretch over the dramatic mounro terrain of the highland summits, to the low lying landscape around Loch Tay. To the rear of the view, when looking towards the proposal, the highland plateau rises again. The view is defined at this point, by open moorland and forest plantations, with large collections of wind turbines. As Figures 6 indicate, the two turbines would just be apparent in the distant view, clearly beyond Loch Tay and in the context of the existing collection of turbines, which are an existing prominent feature in that view. The proposal would then be backclothed wholly by moorland and would be seen away from more significant skylines and landform summits to the west. As a result the two turbines would not be incongruous with the location and function of this section of the distant view and would only represent a very minor change to the view, with no notable change to the underlying balance of elements in the wider view. This would represent a Low to Negligible magnitude of visual change and only a Minor extent of visual effect when combined with the sensitivity from the key receptors of visitors to this summit viewpoint.	Low - Negligible	Minor
3	Kenmore Bridge	High	From this key point within Kenmore, the proposed turbines would not be clearly discernible. They would sit substantially behind landform variation and woodland, which provide strong containment to views south from the bridge (Figure 7). This would also be the case for other points in Kenmore with no notable conflict of elements including the setting of the conservation area to the south and in the principal focus of views, which lie east to west towards the Loch Tay area. This is evidenced further by the limited theoretical visibility shown in the ZTVs. The magnitude of visual change and extent of effect would, therefore, be Negligible.	Negligible	Negligible
4	Black Rock, Drummond Hill	High	This viewpoint is located at a prominent high point within a forested section the Tay Forest Park, overlooking Loch Tay and Kenmore. The existing view south is defined strongly by landform, commercial forestry and woodland. These elements combine to enclose the lower loch area and curtail the view in the mid distance. Key elements of the view are then focused to low points around Loch Tay. They include Kenmore and the grounds of Taymouth Castle. The view then rises sharply over forested lower glen slopes to open moorland slopes and on to a moderately flat skyline. At this point large blocks of forest plantation provide strong edges and form and evidence of human management in the elevated moorland landscape. In this view the proposed turbines would be observed within a plantation area in the elevated moorland (Figures 8) with just the hub and blade tips visible within the forest area. The turbines would not, therefore, be incongruous with the function and balance of elements in this elevated section of the view, which lies at a separate point to the rear of the more valued glen area at Kenmore. While some of the mature forest trees around the proposed turbines would be removed to construct the proposed turbines, further areas of forest plantation, in the intervening view are maturing. These features would assist in screening the turbines and reinforcing the separate context of the turbines to the rear of the view. While they would be visible from this local high point, they would only form small elements to the rear of the view, with no notable effect on the balance and scale of elements in the wider view. This would represent a Medium to Low magnitude of visual change from this isolated point and a Moderate effect. Elsewhere views would be more substantially screened by intervening landform and conifer woodland.	Medium - Low	Moderate
5	Taymouth Castle	High	As the wireframes and montages show (Figure 9), the proposed turbines would not be visible from this area. This is demonstrated further by the absence of theoretical visibility, as shown in the ZTVs. As a result there would be no conflict of elements including the setting of the castle and the principal stretches of the GDL surrounding the castle grounds, within the forested glen area, with no effect predicted.	None	None
6	Adjacent to the B846 North of Coshievile	Medium - Low	Taken from a high point adjacent to the road, this view is representative of views from the B846. This type of view would only be present at two isolated points, for around 50m at an elevated point to the east of Garth Castle, then at a point 2km further south at the junction with Comrie bridge, again for around 50m. This is evidenced further by the ZTVs. Where visible at these points the turbines would be seen in a small distant section of the elevated view to the southwest, just above a lower point of the distant skyline, with the hubs and blade tips evident (Figure 10). They would, therefore, form no more than minor indistinct elements in the general context and within fleeting peripheral views. As a result, they would not significantly change the underlying nature of the view along the road. This would represent a Low to Negligible magnitude of effect and no more than a Minor to Negligible extent of effect when combined with the baseline sensitivity of motorists on the road.	Low - Negligible	Minor- Negligible
7	Rob Roy Way	High - Medium	From this local point on a minor road and the Rob Roy Way long distance footpath at 1.2km to the south of the proposal, the proposed turbines would be evident within the coniferous forest plantation area (Figure 11). At this point they would be seen against the backdrop of the coniferous woodland, with the hub and blade tips of the southernmost turbine visible just above the woodland. The northern turbine would then sit at a lower point with only the extended blade tip sitting above the woodland. This is demonstrated by the wireframe, which also shows that both turbines sit away from more extended views to more distinctive landform summits at Schiehallion. In this perspective the tree felling around the trees would also be clearly visible. However, this would be contained within the southwest side. In the long term, with the reinstatement of pine trees the coniferous woodland area would be restored and largely unchanged. While clearly visible at this point this type of view would only be available for around 1-2km of the long distance path. At these points the existing wind farm influences at Callichar and Griffin would also be visible to the east. The	Medium - Low	Moderate - Minor



No	Location	Sensitivity	Visual Effect	Magnitude of Visual Change	Extent of Effect (Represented)
			turbines would not therefore, form an entirely new element in the view across this elevated moorland landscape. As a result there would be no notable conflict with the balance of elements in the view. The magnitude of visual change would therefore be Medium to Low and the extent of effect is considered to be no more than Moderate to Minor, when combined with the baseline sensitivity for visitors walking on this short section the long distance path with variable views encompassing other comparable elements in the same landscape.		
8	Fortinghall to Beinn Dearg path	High - Medium	At this elevated point on a footpath to Ben Dearg, on the fringes of Glen Lyon NSA, the proposed turbines would be seen within the elevated moorland plateau that defines the backdrop to the immediate view. This view stretches over notable forested areas at Drummund Hill to further forested slopes on the south side of the Lower Highland Glen around Taymouth. From this point the proposed turbines would be seen with the hub and blade tips visible within a plantation forest area (Figures 12). They would also appear below the skyline with no conflict or overlap with any skylines or more distinctive landform summits. They would also be seen in the context of other wind turbines at similar points in the distant view and in the context of a major overhead power line to the east which traverses the view. As a result the magnitude of visual change would be Low and the extent of effect no more than Moderate to Minor when combined with the sensitivity of visitors on this sequential route to the summit.	Low	Moderate - Minor
9	Meall Greig	High	From this notable high point on southern fringe of the Glen Lyon NSA, a dramatic descending panorama is available, in the direction of the proposal, over the low lying settled Loch Tay area to the southeast. The view then rises again in the far distance to further areas of highland plateau, which is defined at this point by an extensive collection of wind turbine influences. These existing turbines are set within an open, simple scaled moorland context. In this view the two proposed turbines would be apparent as minor elements just in front of the expansive collection of wind turbines and within the context of the elevated moorland landscape (Figures 13). However, there would be no notable overlap or visual complexity in the general arrangement or turbines and no notable intrusion into the lower lying areas around Loch Tay. As a result the underlying nature of the view would remain similar to the baseline. This would represent a Low to Negligible magnitude of visual change. When combined with the sensitivity of visitors to the summit viewpoint, the extent of visual effect would be no more than minor.	Low - Negligible	Minor
10 a	Adjacent to Glen Quaich road North of site	Medium - Low	This view is taken from a high point adjacent to the Glen Quaich road at around 0.9km to the north of site. It is representative of views from motorists on the road. As the existing photograph shows (Figure 14)a short ascending view stretches over rough grassland and moorland fringe to a moderately flat skyline defined by forest plantation. From this point the combination of landform variation and forest would screen the majority of the turbines, with just the extended blade tips of the northernmost turbine apparent. From the road they would not be discernible until the motorist is level with the turbines. As a result they would not significantly change the underlying nature of the view at this point. This would represent a Low to Negligible magnitude of effect and no more than a Minor to Negligible extent of effect when combined with the baseline sensitivity of motorists on the road.	Low - Negligible	Minor- Negligible
11	Beinn Ghlas	High	From a further notable summit of the Ben Lawers massif at Beinn Ghlas, a view stretches over the sweeping munro terrain, which strongly defines the foreground view and curtails clear views to the east. This view then gives way to a sharp change in elevation and to a separate low lying area around Loch Tay. It then rises further in the far distance to further highland plateau landscapes. At this distant point it is defined by a large collection of wind turbines. As Figures 15 indicate, the two proposed turbines would be faintly apparent in the distant view, sitting in the same elevated context as the existing turbines, which dominate the surrounding area. They would sit wholly within the moorland context, away from the low lying areas along Loch Tay and below the skyline and more significant summits to the west. As a result the two turbines would not be inconsistent with the balance of elements in this section of the view and would only represent a very minor change to the view. This would represent a Low to Negligible magnitude of visual change and only a Minor extent of visual effect when combined with the sensitivity from the key receptors of visitors to this summit viewpoint.	Low - Negligible	Minor
12	Meall Tairneachan	High	From this distant summit to the north, on the southern fringe of the Loch Tummel NSA, the proposed turbines would be apparent, within the distant plateau moorland, to the rear of the highland glen area. From this point the rotor diameter of the proposed turbines would be evident above a small forest plantation (Figures 16). From this point the two turbines would be entirely backclothed by open moorland and at a point which limits overlap or intrusion with more distinctive skyline features, landform variations and more settled low lying areas, within the intervening glen area. They would also be seen in the same moorland context as the existing Calliachar wind farm, which sits at a more prominent elevated point to the southeast. The proposed turbines would not, therefore, provide a new element in this section of the view and would only form a very minor change to the nature of the view. This would also be at a separate distant point outwith the NSA which extends to the northeast. This would provide a Low to Negligible magnitude of visual change and result in no more than a Minor extent of visual effect, when combined with the sensitivity of the key receptors of recreational visitors. There would be no further visibility from the Loch Tummel NSA.	Low - Negligible	Minor
13	Creag an Sglata	High	As the wireframes show (Figure 17), the proposed turbines would not be visible from this area. This is demonstrated further by the limited coverage of theoretical visibility, as shown in the ZTVs. As a result there would be no conflict of elements including the principal stretches of the Upper Almond CAWL, with no effect predicted.	None	None
14	Meal Nam	High	At this elevated point on the eastern fringes of the Upper Almond CAWL, the proposed turbines would be seen across the sweeping elevated moorland plateau to the northeast. This open view continues throughout. It is defined by the key elements of open moorland and rolling landform. In this context the two turbines would be seen on a distant ridgeline, with the hub and blade tips visible just above the ridge, (Figures 18). They would then be backclothed by further sweeping moorland terrain connected with separate highland plateau areas to the north. In this expansive simple scaled view, the two turbines would appear as fairly diminutive elements, with no overlap of contrast with key landform or landcover elements, including the munro summits to the north. The proposed turbines also sit at a separate point to the north, away from the focus and context of the Glen Quaich area, where the expansive existing wind turbine influences of Calliachar (Figure 18), lie at a prominent point above the glen and at a closer point than the proposed turbines. As a result the proposed turbines would not form an entirely new element in the view, sitting as minor elements beyond more prominent wind turbine influences. This would result in a Low to Negligible magnitude of visual change and the extent of effect would be no more than	Low - Negligible	Minor



No	Location	Sensitivity	Visual Effect	Magnitude of Visual Change	Extent of Effect (Represented)
			Minor when combined with the sensitivity of visitors to this point.		



1.5.7 Effects on Visual Receptor Groups

The visual assessment shows that, geographically, the extent of significant visual effect would be relatively low. Given the setting and nature of the host landscape within an area of coniferous forest plantation surrounded by open moorland, the proposed turbines would not lie close to large numbers of sensitive receptors including residential properties. Where properties are present they lie within lower lying glen areas and are screened by notable landform variation and woodland cover. This would limit the potential for any significant effects on residential amenity.

For motorists, visibility would also be limited with no significant effects predicted, with just fleeting or glimpsed views, screened by vegetation and landform, from the minor roads passing the site and to the north side of the nearest glen area at Kenmore.

The visual change as a significant effect would, therefore, be experienced by a relatively small number of people. This would be restricted to an isolated viewpoint at Black Rock used by recreational visitors. From this point an open view would be available towards the development. However, the proposed turbines would be seen clearly within the context of a working forestry area in the highland plateau landscape to the south of the lower lying glen area and would be seen as small elements in the wider view.

More extended visibility would be available from intermittent munro summits to the north of Loch Tay, within the Glen Lyon NSA, which form a key focus for recreation and tourism receptors in the area. At these more distant points, the proposed turbines would be viewed within expansive far reaching panoramas which take in a range of varied landscapes. They would also sit at a clearly separate point from the summit viewpoints and as minor elements within a separate section of the highland plateau, below the skyline. At these elevated points they would also be seen in the same context as other more prominent, extensive collections of wind turbine and large pylon influences. While the proposal would sit at a slightly closer point to the highland glen areas around Loch Tay they would still be observed at a clearly defined point within the plateau moorland context. This would limit the potential for encroachment in to the settled glen areas, as evidenced by the limited visibility from these points

Beyond these points, and from most of the more intricate, low lying, settled, historic landscapes, views would be notably restricted by intervening landform, woodland and forest. This would include the CA at Kenmore and the GDL at Taymouth Castle. Effects on recreation and tourism receptors are not, therefore, considered to be significant.

The detailed viewpoint assessment has indicated a positive picture regarding the significance of effects upon visual receptors. In EIA terms, no effects of Moderate to Major or more were predicted on key receptors at identified viewpoints. Moderate significant effects were then predicted at just one isolated viewpoint at Black Rock. For the remaining 13 viewpoints assessed no significant effects were anticipated, which is notable given the high level of sensitivity accorded to most key receptors in the area.

When considered together with the effects on all relevant key receptor groups present and the limited geographical extent of the ZTV across the area, the overall effect on visual amenity is not considered to be significant.

1.6 Cumulative Effects Summary

The purpose of the cumulative assessment is to consider the potential effects upon the landscape and visual environments in relation to existing wind turbine developments and other known consented and proposed wind turbine developments in the area. It raises questions over thresholds of acceptable change (spatial and temporal) and the landscape's capacity to accept change. GLVIA (3rd edition, 2013) advises that *"cumulative landscape and visual effects result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future"*.

As detailed in the main LVIA, the host landscape has been substantially modified by existing wind turbine and large pylon influences. This influence is principally focussed on the Craigvinean Forest section of the Highland Summits and Plateau LCT, to the north of Glen Quaich (Figures 19 and 20), with two large wind farms at Griffin and Calliachar, and the new Beaully-Denny 400kV pylon line. These now provide a significant and expansive built influence in the surrounding landscape.

As the Cumulative ZTV in Figure 20 indicates, the theoretical cumulative exposure of these two operational wind farm developments extends across the open moorland that surrounds the development site. It continues further to other notable high points to the north of the highland glen areas. This is evidenced by the cumulative wireframes from each of the identified viewpoints. The exposure of these operational developments would also be, at times, more extensive than the proposed turbines. This would include more widespread areas across the host Highland Summits and Plateau landscape to the south and east and the more remote and valued points across the Glen Almond CAWL. It would also include the fringe landscapes of the Glen Lyon NSA and its associated mountain summits and CAWL's along with further fringe areas of other NSAs at Loch Tummel and the River Tay (Dunkeld).

As the ZTV also shows, the proposed turbines would rarely add to the existing extent of visual exposure from these sensitive points and seldom provide a new defined element into the landscape resource. The two turbines would also be of a smaller scale and at a sufficient distance from the nearest turbines at Calliachar so as not to significantly change or alter the underlying balance of elements in the landscape and visual resource, the Calliacher and Griffin turbines being more than twice the height of the proposed turbines. The cumulative effect of the proposed turbines, in combination with other existing developments would not, therefore be significant, with no extensive visible overlap or complexity in developments from the vast majority of the surrounding landscape and only a modest addition to the existing influence.

A consented but currently not built scheme at Urlar is at a similar elevation to the Bolfracks turbines and location to the south side of Loch Tay at 2.5km southwest of the proposal. This approved development is for two turbines up to 47m blade tip height. As the Cumulative ZTV in Figure 21 shows, the two schemes would be visible together from most of the elevated moorland landscapes to the north of Loch Tay and to the south of the proposed site at Bolfracks. The ZTV also indicates that, at times, the Urlar turbines would be visible from wider key stretches of the glen areas, particularly across Loch Tay, to the northwest and therefore sets an accepted pattern of wind turbine influence at this point to the south of Loch Tay. The Bolfracks turbines would then carry no greater

influence than these consented turbines, across these glen areas. This is evidenced by the cumulative wireframes from the identified viewpoints.

When combined with the consented pattern of development in the area, the proposed Bolfracks turbines would, therefore, add a comparable scaled development at a similar point in the Highland Summits and Plateau LCT, to the south of the Highland Glen LCT at Taymouth. This would reduce the potential for encroachment on more sensitive landscapes. The proposed Bolfracks turbines would also sit at a sufficient distance from the consented turbines, such that it would allow the underlying scale and balance of landscape characteristics to remain dominant between separate wind turbine elements. This would fit with the emerging pattern of accepted wind turbine influences, allowing more notable remote sections of the Highland Summits and Plateau area to remain largely unchanged.

The overall cumulative effect of the proposed turbines, in combination with other existing and consented developments is not, therefore, considered to be significant, with no extensive visible overlap or complexity in developments from the vast majority of the surrounding landscape and only a moderately strengthened element locally. As a result the surrounding landscape would have the capacity to absorb the type and scale of development proposed, without significant cumulative effect on the underlying characteristics.

When considered further with schemes in planning, there is one development proposed at Mull Hill. However, given the significant separation between these schemes there would be limited potential for intervisibility. This would reduce the potential for significant cumulative effect on the landscape and visual resource, with no additional cumulative effect anticipated.

In summary, given the nature, scale and location of the proposed turbines at Bolfracks, they would only contribute a minor additional element within an accepted pattern of turbines in the area, with no potential for contribution to additional cumulative effects.

1.7 Summary

Following the LVIA, it is not considered that the proposed turbines would represent a significant new element or notable change to the pattern of existing characteristics within this section of the Highland Summits and Plateau landscape. Nor would it notably affect the landscape and visual resource in the surrounding area, including the range of sensitive landscapes and visual receptor groups.

Where visible the turbines would be, on the whole, seen as a minor additional element to the existing wind turbine influence in the open moorland landscape and at a point, clearly outwith the sensitive areas. It would also sit at a point which adds to a key focus of turbines, rather than provide a new separate focus. This would limit the potential for effect from more valued, remote sections of the landscape where the absence of human artefacts is more important in defining character. As a result there would be no significant effect on the character, special qualities, landscape setting and/or views from these sensitive areas. The turbines would also be consistent with the existing landscape character of the area and the emerging pattern of wind turbine influences within the same section of the Highland Summits and Plateau LCT.

While there would be some minor points of visibility from the northern fringe of the Taymouth Castle GDL, this would not include key areas within the castle grounds and

the Kenmore CA, where sensitive visual receptors are present, such as residents or tourists. In the wider context of these areas the turbines would then be seen at a similar point to the consented turbines at Urlar. As a result they would be seen to fit with the accepted pattern of development in the area.

It is therefore considered that the nature and character of the receiving environment has the ability to accommodate this minor change without giving rise to any significant landscape, visual and cumulative effects on the landscape and visual resource. Both the scale and location of the turbines are considered appropriate and sit with the accepted pattern of development to the south of the Loch Tay area. Furthermore, whilst there would be acknowledged changes in the local landscape, these would be completely reversible and temporary given the turbine's anticipated life span.

1.8 References

- SNH Commissioned Report F01AA303A, Visual Assessment of Windfarms Best Practice, University of Newcastle (2002);
- The Visual Representation of Windfarms: Good Practice Guide, SNH (May, 2007);
- The Strategic Locational Guidance for Onshore Wind Turbines in respect of the Natural Heritage, SNH Policy Statement No 02/02, updated 2009;
- Guidelines on the Environmental Impacts of Windfarms and Small Scale Hydroelectric Schemes; SNH (2002)
- Siting and Designing Wind Farms in the Landscape, SNH (2009, version1)
- Assessing the Cumulative Impact of Onshore Wind Energy Developments, SNH (March 2012);
- The special qualities of the National Scenic Areas. Report No.374. SNH (2010).
- Wilderness in Scotland's Countryside, SNH Policy Statement No 02/ 03(2002) and 2013 updated Wilderness Mapping
- SNH Review No. 122 - Tayside Landscape Character Assessment (LCA)
- Kenmore Conservation Area Appraisal, Perth and Kinross Council (Nov,2010) and
- Visualisation Standards for Wind Energy Developments, Highland Council (2010)

PRE PLANNING ECOLOGICAL ASSESSMENT OF TWO WIND TURBINES ON BOLFRACKS ESTATE

For Realise Renewables LLP

18th April 2013

REFERENCE: 2013/001 BOLFRACKS WIND			
Issue		Prepared by	Reviewed by
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Executive Summary

Site Location	The site of the two proposed turbines (totaling 100-500kw) is within an existing 35 year old forestry plantation just 3km south of Kenmore and just east of the Kenmore to Amulree road in western Perthshire.
Survey by Skorpa Consultancy	<p>This report was undertaken to fulfill a request by Realise Renewables LLP to provide:</p> <ul style="list-style-type: none">• a site visit by a trained ecologist;• a brief description of the site, its context and the habitat, flora and fauna, and;• the identification of the presence of any protected species (including birds and mammals) and identification of any required mitigation.
Evaluation, Mitigation and Constraints	Can we discuss

Introduction

Skorpa Consultancy Ltd (Skorpa) was commissioned by Realise Renewables LLP to undertake a Pre-Planning Ecological Assessment of the area around the two proposed wind turbines to be erected just east of the Kenmore to Amulree road and 3km south of Kenmore in west Perthshire. The location of the proposed turbines is 462m and 484m AOD and situated within a 35 year old forestry plantation (Figures 1 and 2). To the south and west, the land is dominated by open heather moorland managed for grouse and sheep while to the north and east the ground is dominated by forestry. The grid locations for the turbines are:

1. 280003, 743802
2. 279843, 743970

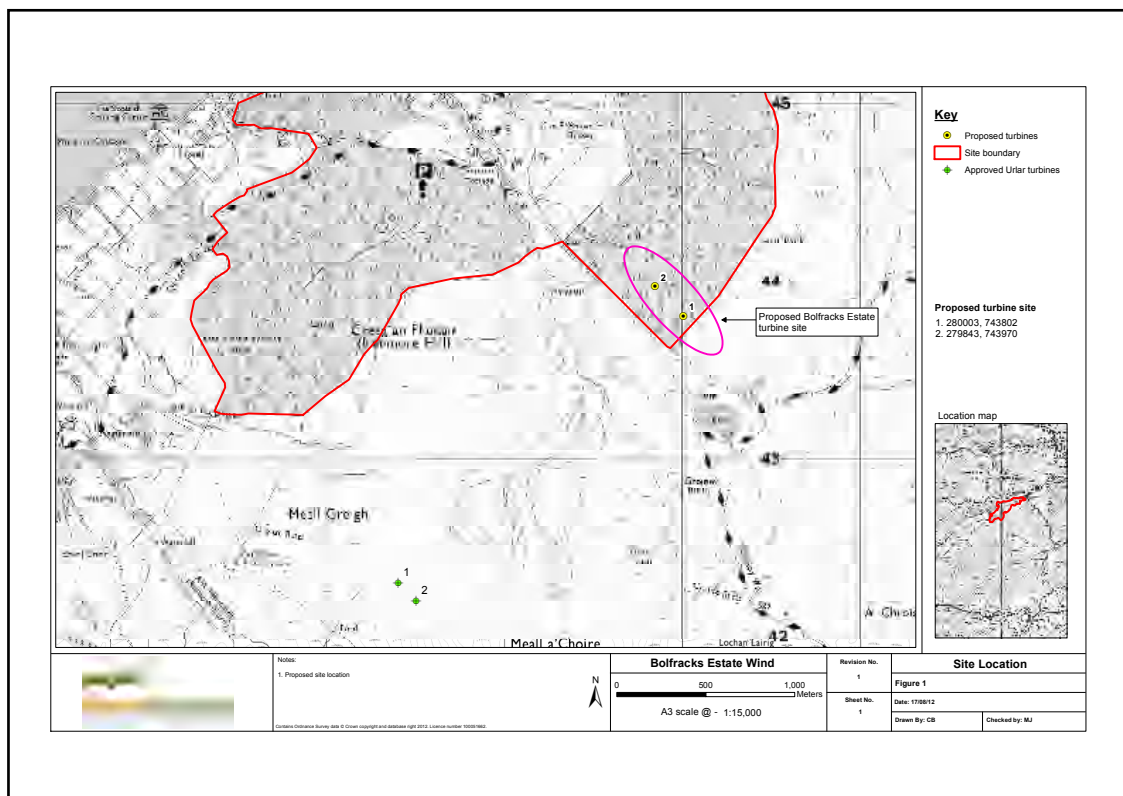


Figure 1: Map of the location of the two turbines.



Figure 2: Google Earth image of turbine locations.

The scope of work required:

- a site visit by a trained ecologist;
- a brief description of the site, its context and the habitat, flora and fauna, and;
- the identification of the presence of any protected species (including birds and mammals) and identification of any required mitigation.

Site Description

The turbines will be situated within a 35 year old forestry plantation 50m in from the forestry edge. The ground was formally a hill park primarily used for grazing hill sheep and cattle in earlier times. The ground was then planted with conifers - primarily Sitka Spruce although some larch were planted along the woodland edge. Due the management practices at the time, the trees were planted on the tops of deep furrows which provided a rapid route for water to run off the site.

The turbines are situated within the southern extremity of a larger woodland block that extends along the upper slopes above the south side of Strath Tay and Loch Tay. Immediately to the east, south and west of the proposed turbine locations is heather moorland managed for grouse and hill sheep. To the north west of the turbine locations is a 100 ha hill park completely enclosed by the surrounding woodland. A small lochan used for fishing lies 250m south west of the proposed turbine locations. A small upland burn drains the lochan and flows northwards passing within 300m of the proposed turbine locations before descending rapidly to the Strath below. At a location 1.5km north of the turbine locations, the road leading from Kenmore to Amulree (and which will be used for access to the site), crosses the same burn at Tombuie Cottage. At this point there is an intake for the Bolfracks run of river hydro scheme.

The woodland is enclosed by a standard 2m high deer fence which appears to be in good order. Refer to Plates 1-10 for views of the Turbine Locations and adjacent fields/habitats.

The location of the turbine within the woodland and adjacent to the heather moorland is fairly typical of this upland landscape lying in the foothills of the Breadalbane massif.

Designations

The most significant designated area within 5km of the turbine locations is the River Tay Special Area of Conservation which includes Loch Tay and the Rivers Tay and Lyon. The loch and rivers is designated primarily for its clear water lochs with aquatic vegetation and poor to moderate nutrient levels. In terms of species, it is designated for the river, brook and sea lamprey, salmon and otter. Apart from the otter (see later), the proposed location of the turbines will have no effect on this designated site.

One other designated site lies within 5km of the proposed turbine and that is Bolfracks wood. Bolfracks Wood SSSI lies 5km north east of the proposed turbines and is designated for its slope alderwood, which is a rare and decreasing habitat and is one of only three sites in West Perthshire. The wood is classed as Ancient Woodland of semi-natural origin. The proposed turbines will have no effect on this designated site.

European Protected Species (EPS) Interests

Mountain Hare: This species has been listed as a priority species for conservation action under the UK Biodiversity Action Plan. According to the National Biodiversity Network (NBN) this species is not present within the 10km square of the turbine. However, personal observations have noted many mountain hares in and around the hill road leading between Kenmore and Amulree. Mountain hare pellets were discovered within the woodland area - but were confined to area of the newly planted conifers immediately north of the northern turbine. It is unlikely however, that mountain hares would move into the 35 yr old conifer plantation as there is no vegetation on the ground on which to graze. In time, however, once the area around the turbine is cleared of trees and a natural grass/heath mix regenerates, then it could be possible that mountain hare would successfully colonise this area.

Red Squirrel: Red squirrel are an EPS and have been recorded within the woodlands in and around Kenmore on many occasions according to the NBN. Indeed, the local school in Kenmore runs a squirrel feeding programme and many squirrels have been witnessed in the village. Additionally, the author of this report has seen many red squirrels in the woodlands leading up to the turbine location and indeed on closer inspection evidence of red squirrels were found into the woodland. At several locations feeding stations with eaten pine cones were found.

Otter: Otters are an EPS and have been recorded (NBN Gateway) on the lochan 250m south of the turbine locations and on the burn leading down to the Strath. The author has recorded many otters on the river Tay and Loch Tay 3km north of the proposed turbine locations. The conditions in the month of April - first heavy snow and then much melt water made a survey of the burn and lochan unsafe. Nevertheless, otter spraint were found along the dam wall on the lochan. However, due to the recent spate, no evidence of otters were discovered on the burn, but this does not mean they are absent - just they could not be found at present.

Pine Marten: Pine martens are an EPS. However, the NBN was ambiguous for this species and was mixing up records for pine marten with those for otters. Nevertheless, the author of this report has encountered pine martens in the woodland north and east of the proposed turbine locations. Although no evidence was found during the visit, there is still a possibility that pine martens use the sitka spruce woodland within which the turbines are to be located.

Bats: a number of bat species will be present in the area but without a bat survey the species and their numbers cannot be assessed. The nearest potential roost site would be the house and outbuildings at Tombuie Cottage 1km to the north. However, the turbine is in the middle of an mono culture woodland at a high altitude where the passage of bats would be limited. Therefore the author of this report believes that bats would not be a concern with this project.

Other EPS species include badgers and water vole, but these have not been recorded in the area (NBN) and the author of this report believes them to be absent from the woodland therefore of no concern.

Required Mitigation

There are no relevant designated sites within the vicinity of the proposed location of the two turbines. The River Tay/Loch Tay SAC although only 3km north of the site is not going to be affected by the proposed scheme.

Although not likely to be directly affected, red squirrels may occupy the conifer woodland which would therefore have to be surveyed for squirrel dreys. Only if a red squirrel drey were found in the vicinity (<250m) of any proposed construction works would a licence (from SNH) to operate closer than the 250m be required. If a drey was found on a tree that was to be felled, then it is highly unlikely that a licence would be granted for the felling and alternative solutions would need to be found. These surveys can be completed at any time of year, although surveys are best done in winter which makes the finding of dreys a little easier.

Similarly, an extensive search for pine marten dens will be required to ensure that breeding dens are not disturbed. As for red squirrels, if a den was found within a specified distance - 500m - then a licence would be required from SNH to work any closer.

Nesting birds could be a serious problem if felling of the trees was to be carried out between March and July. Therefore to minimise this effect, it is highly recommended that all tree felling occurs in autumn early winter.

Mountain hares are present but are highly mobile. Their young lie up in above ground shelters known as forms and can move rapidly from one field to the next. So although a UK BAP species, the short period of construction will only disturb the animals for a short period of time and would therefore be of no concern. Indeed, the grass/heath habitat created around the base of each turbine would be beneficial to mountain hares.

Otters are present in the area, but no holts were found either side of the bridge crossing the burn. The limited increase in traffic across the bridge will therefore have no impact on otter populations in the area.

Bats will be present in the area, but not likely to be flying across the conifers. They are more likely to restrict their flying patterns to the woodland boundaries and the woodlands to the east. It is therefore unlikely that the turbines will have any affect on the bat populations in the area and no mitigation would be required.

Conclusions

The two turbines (60m to tip) will be centred in the middle of an existing 35yr old conifer plantation. A grouse moor lies to the south and west of the site, while the conifer plantation extends eastwards for several miles and to the north is a derelict upland hill park. The woodland and surrounding landscape are fairly typical of those areas found in the eastern Breadalbane massif.

The primary concern in terms of ecological impact would be the potential of red squirrel dreys or pine martens dens in the woodland area to be felled to allow the construction of the turbines. A full red squirrel drey and pine marten survey would be required. Although just as important, nesting birds within the trees to be felled could also be of concern, but this could be mitigated against to near zero impact, if all trees were felled during late autumn/early winter, prior to any nesting birds - even crossbills. It is unlikely that the delivery of materials across the road bridge just north of the site would have any impact on the otters.

No other ecological impacts are foreseen at this stage.

Plate 1 Derelict upland hill park north of the woodland in which the turbines are to be located.



Plate 2 View west of turbine's location. Amulree to Kenmore road.



Plate 3 Western edge of woodland in which turbines are to be located.



Plate 4 Track leading through conifer plantation dominated by Sitka Spruce.



Plate 5 Approximate location of the southerly turbine. Small patch of Scot's pine.



Plate 6 Ground flora within woodland is rather limited.



Plate 7 Cone eaten by red squirrel.

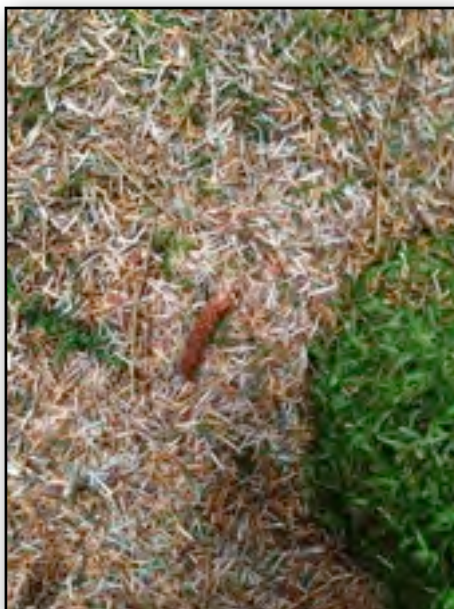


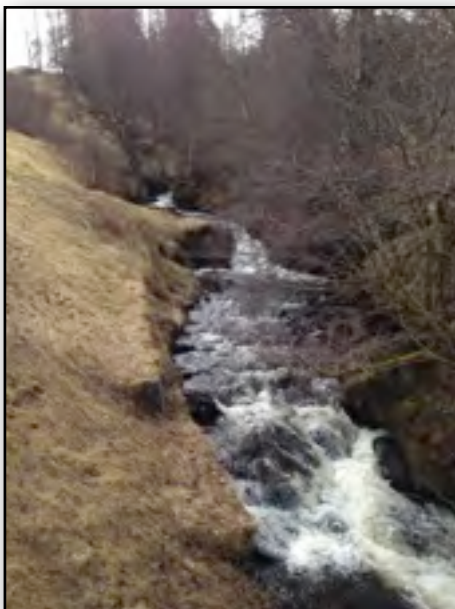
Plate 8 Recently planted ground near the location of the northerly turbine.



Plate 9: Small lochan at which otter spraint was found.



Plate 10. Burn 500m west of turbines location.



Appendix I: Report Conditions

This report is produced solely for the benefit of Realise Renewables LLP and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Skorpa. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of Skorpa using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to Skorpa by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modeling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the

assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modeling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Skorpa accepts no liability for issues with performance arising from such factors.

Bolfracks Estate Wind Turbine

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Environmental Report

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Figure 1a	Site Constraints
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Landscape and Visual Impact Assessment

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L VIA Figure 20	Cumulative ZTV - Installed
L VIA Figure 21	Cumulative ZTV - Approved

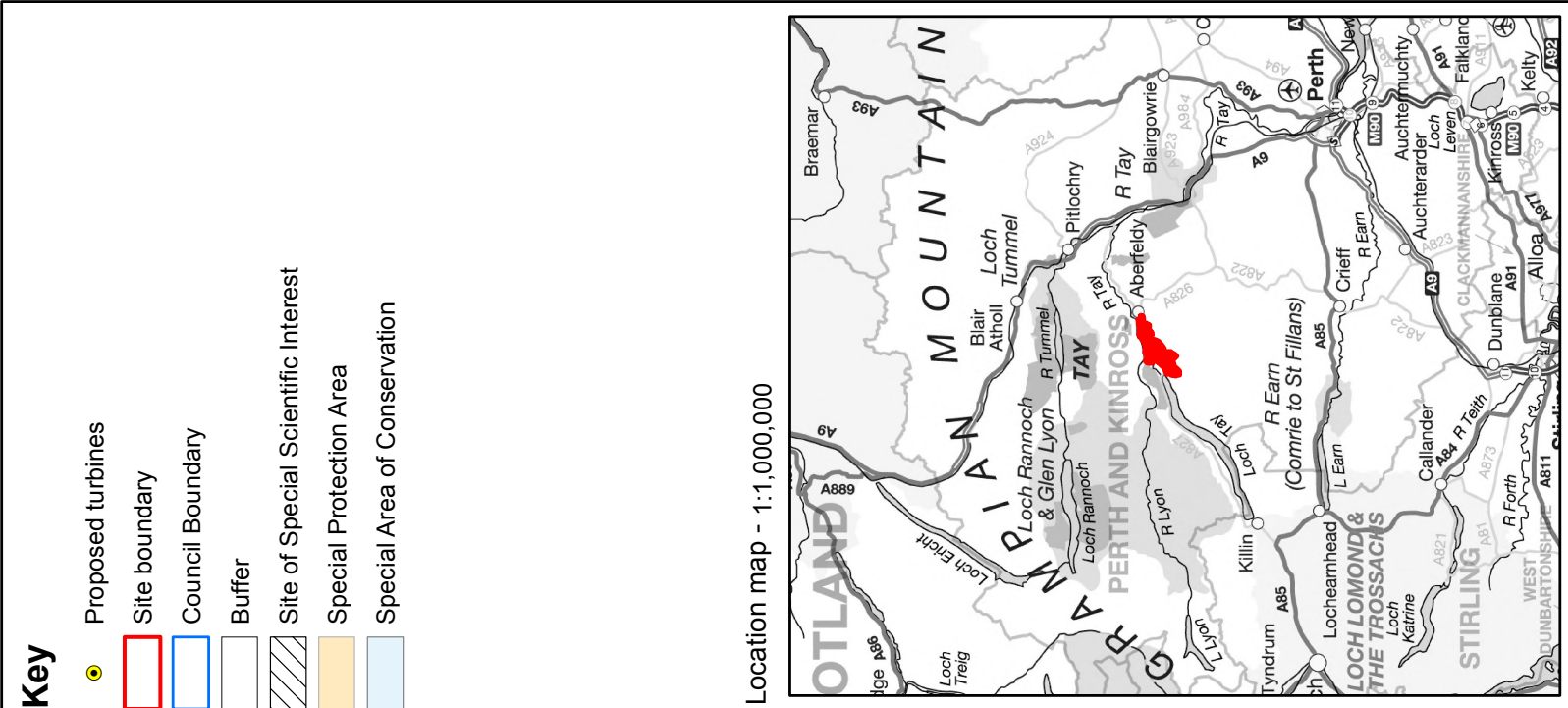
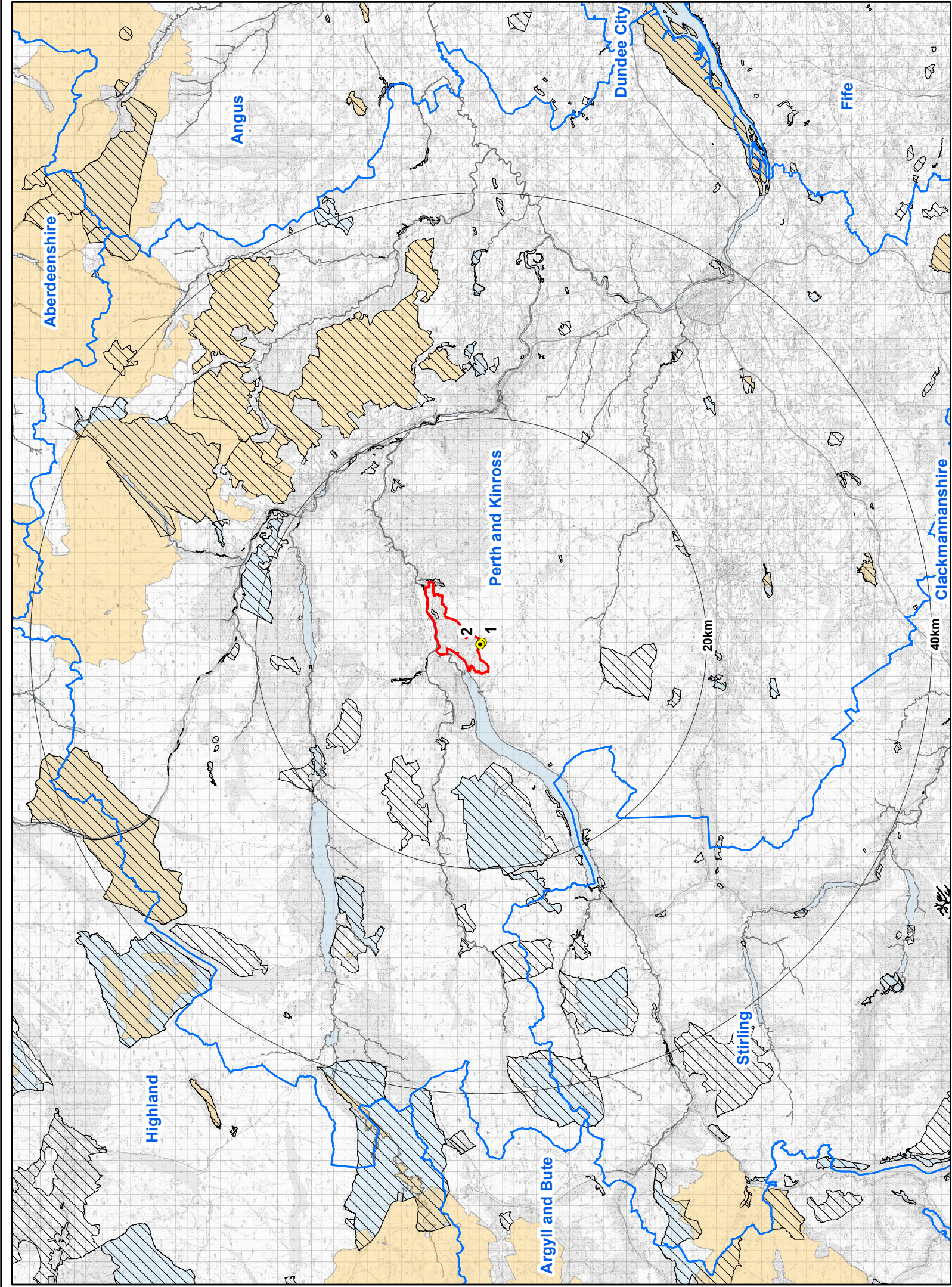
Bolfracks Estate Wind Turbine


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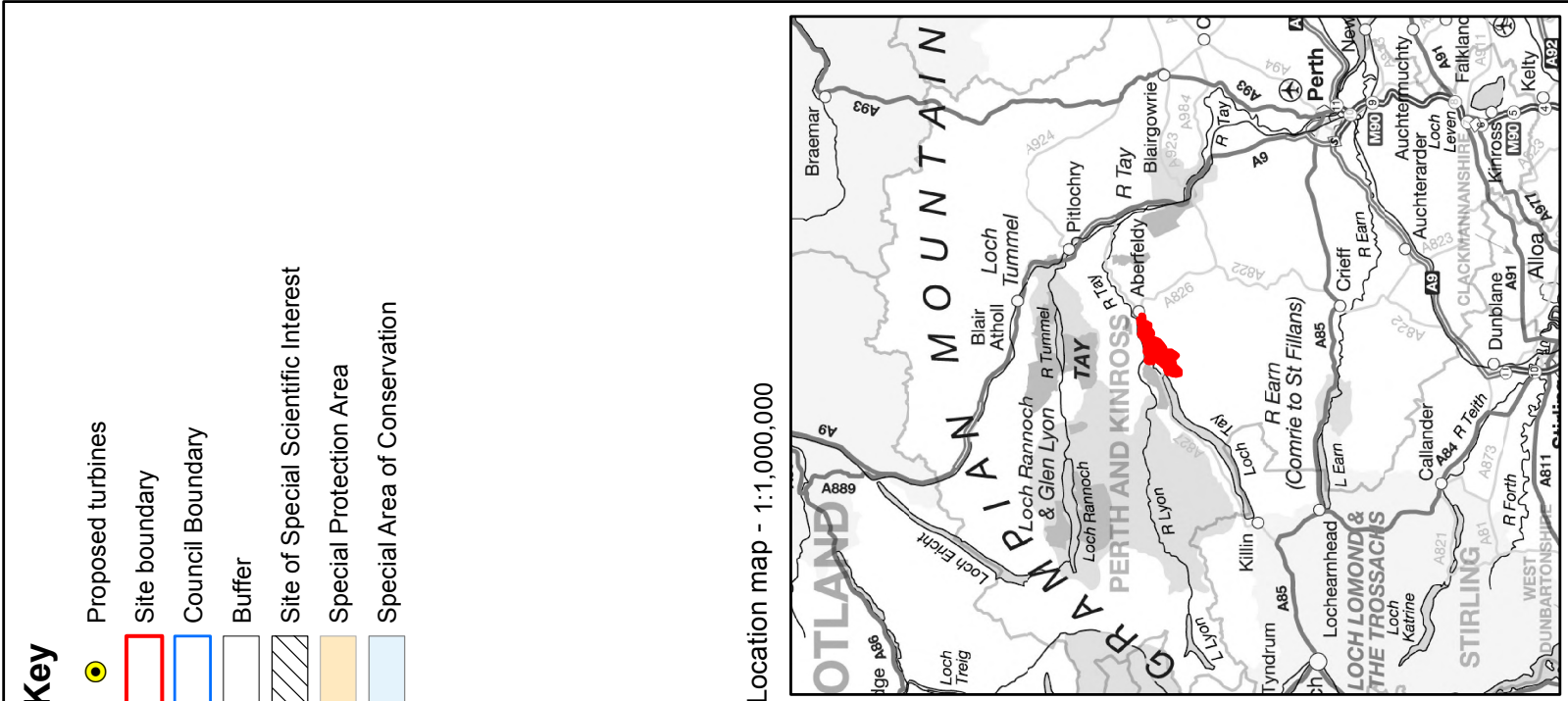
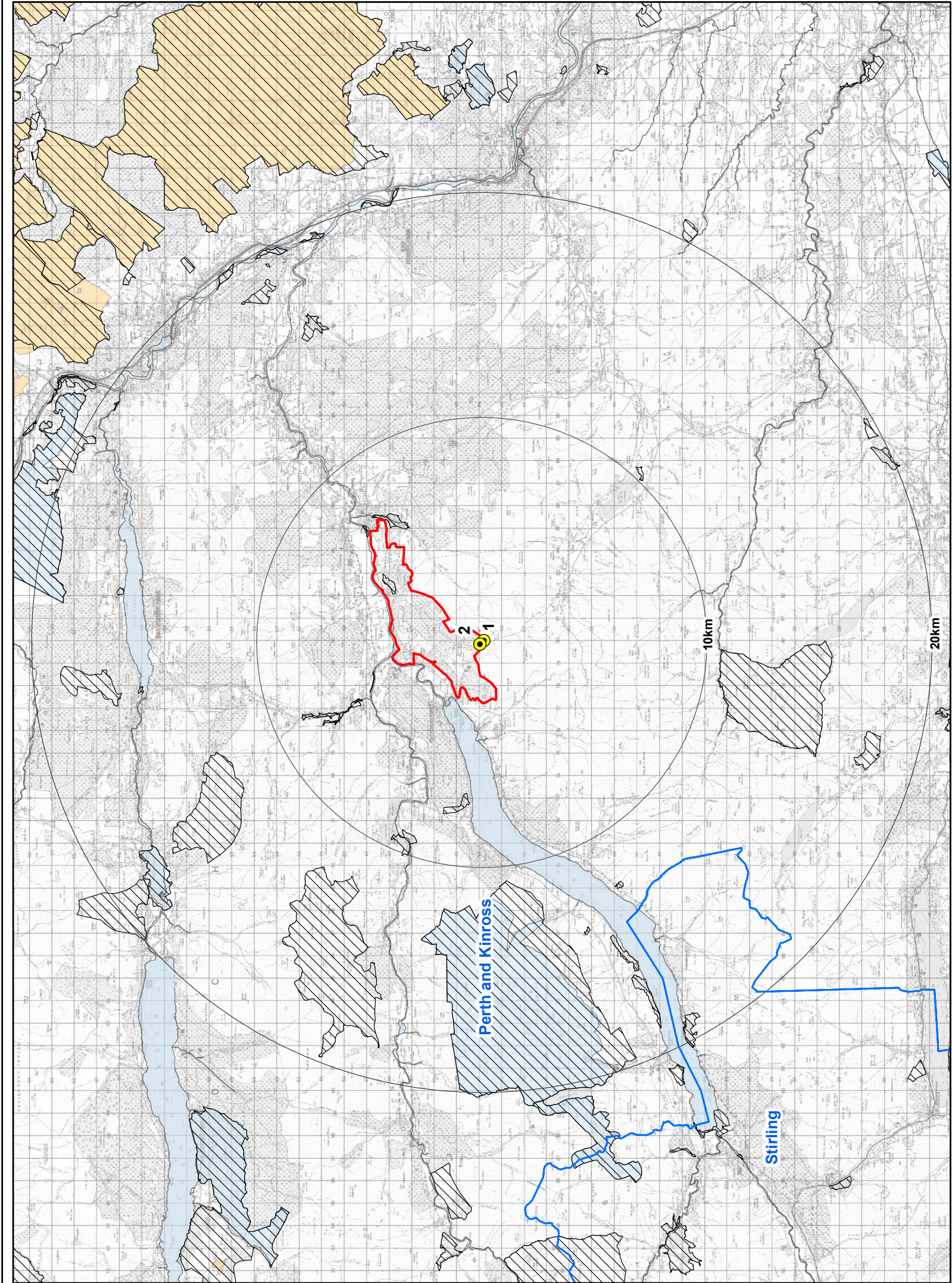
Appendix 2: Ecology and Ornithology



Ecology Figure 1 Ecological Designations (40km)

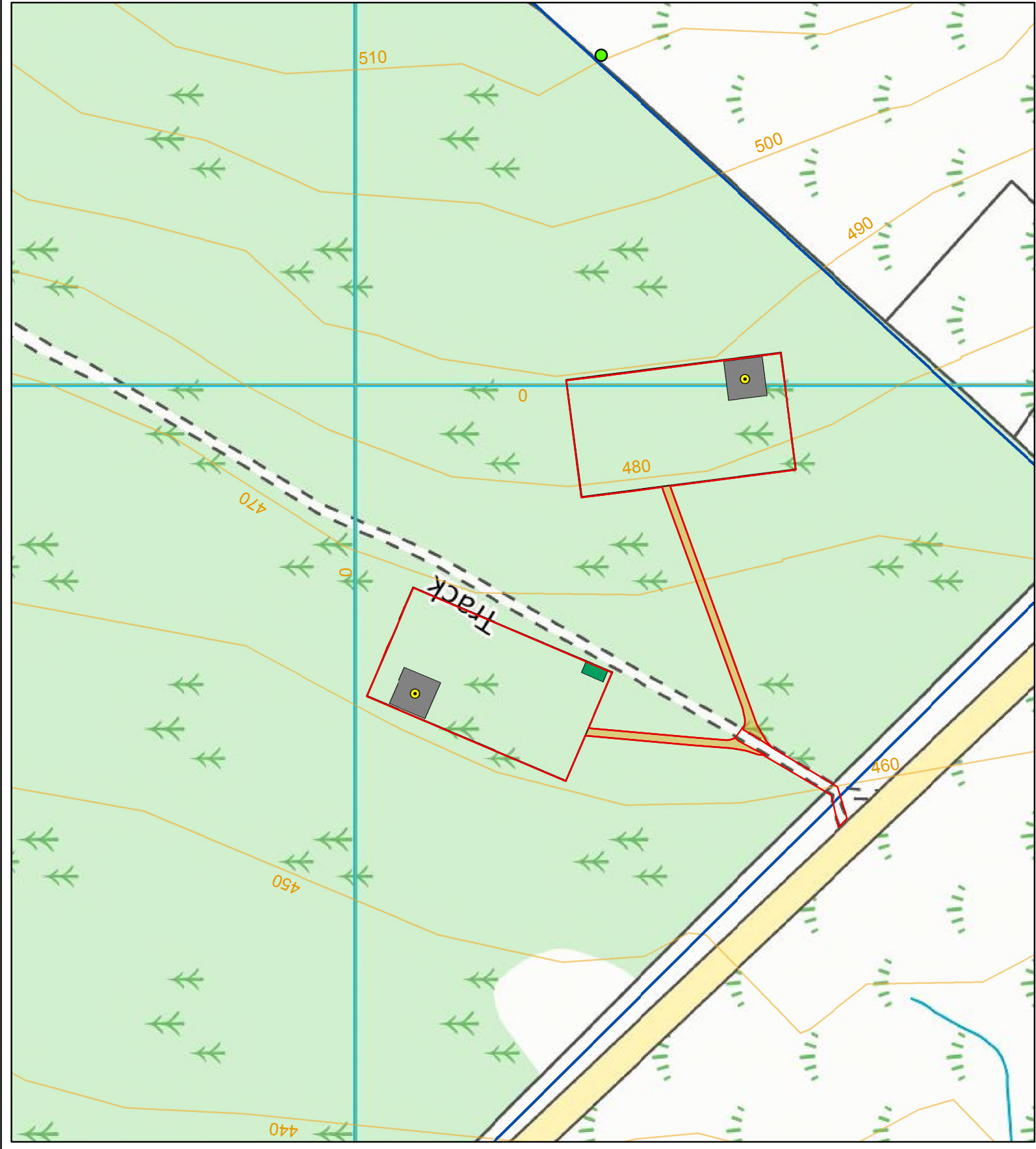
Ecology Figure 2 Ecological Designations (20km)



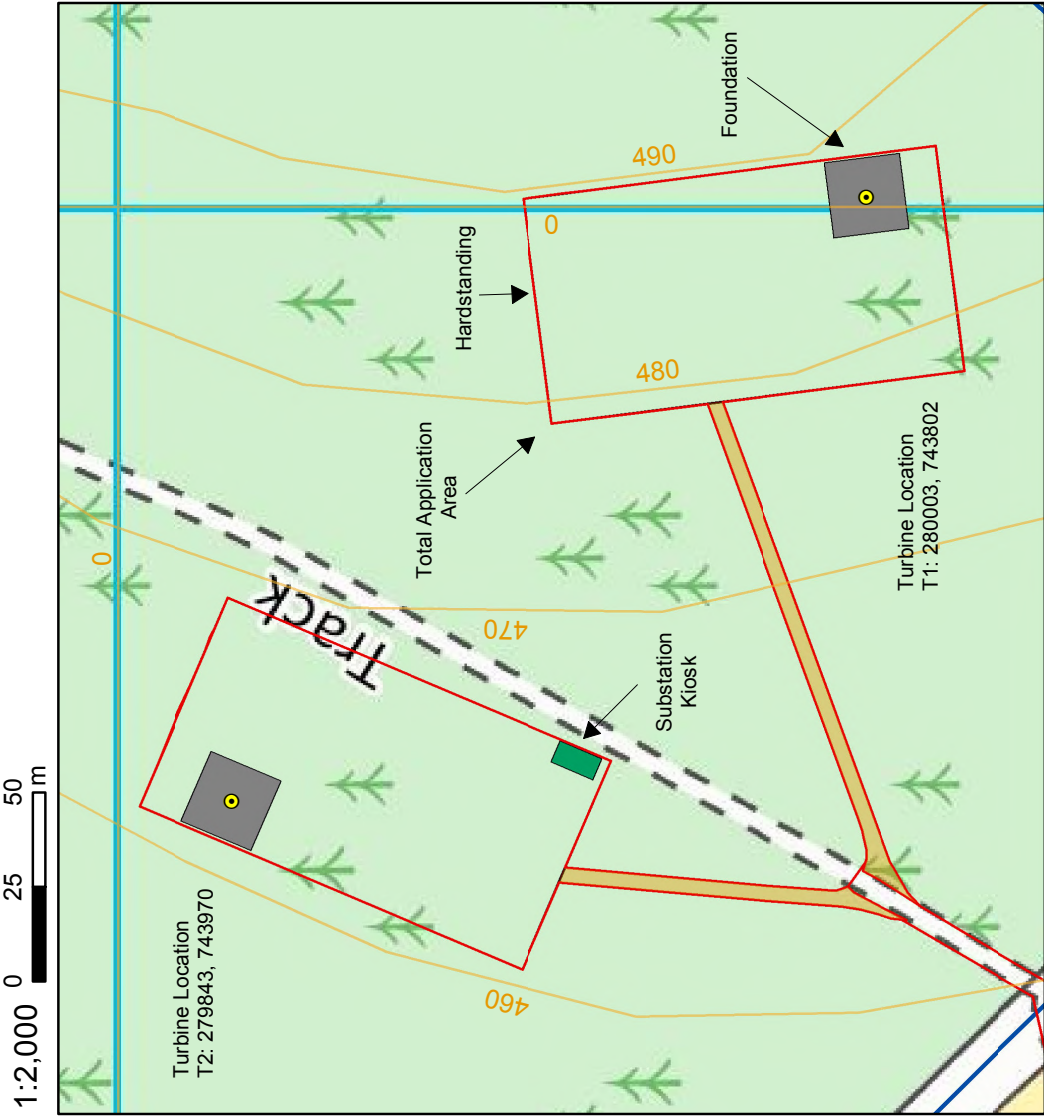
 RealiseRenewables <i>Realise your renewable energy potential</i>	Notes: 1. Map data sourced from Scottish Natural Heritage datasets.		Bolfracks Estate Wind Turbine		Revision No. 1		Ecological Designations	
			0 12,500 25,000 Meters A3 scale @ - 1:400,000		1		Ecology Figure 1	
					Sheet No. 1		Date: 12/09/13 Drawn By: SC Checked by: MJ	



<div> RealiseRenewables <i>Realise your renewable energy potential</i></div> <div>Notes: 1. Map data sourced from Scottish Natural Heritage datasets.</div> <div>Contains Ordnance Survey data © Crown copyright and database right 2013. Licence number 100051662.</div>	<div><p>N</p></div>	Bolfracks Estate Wind Turbine		Ecological Designations	
		<div><div>05,00010,000</div><div>Meters</div></div> <div>A3 scale @ - 1:200,000</div>		Ecology Figure 2	
		<div>Revision No. 1</div>		<div>Sheet No. 1</div>	
		<div>Date: 12/09/13</div>		<div>Drawn By: SC</div>	
				<div>Checked by: MJ</div>	



- Key**
- Proposed Turbine Location
 - Total Application Area
 - Site boundary
 - Access
 - Substation Kiosk
 - Foundation
 - Crane Hardstanding & Laydown Area



Notes:
1. Site layout from existing public access to site.



Bolfracks Wind Turbine

Revision No.
1

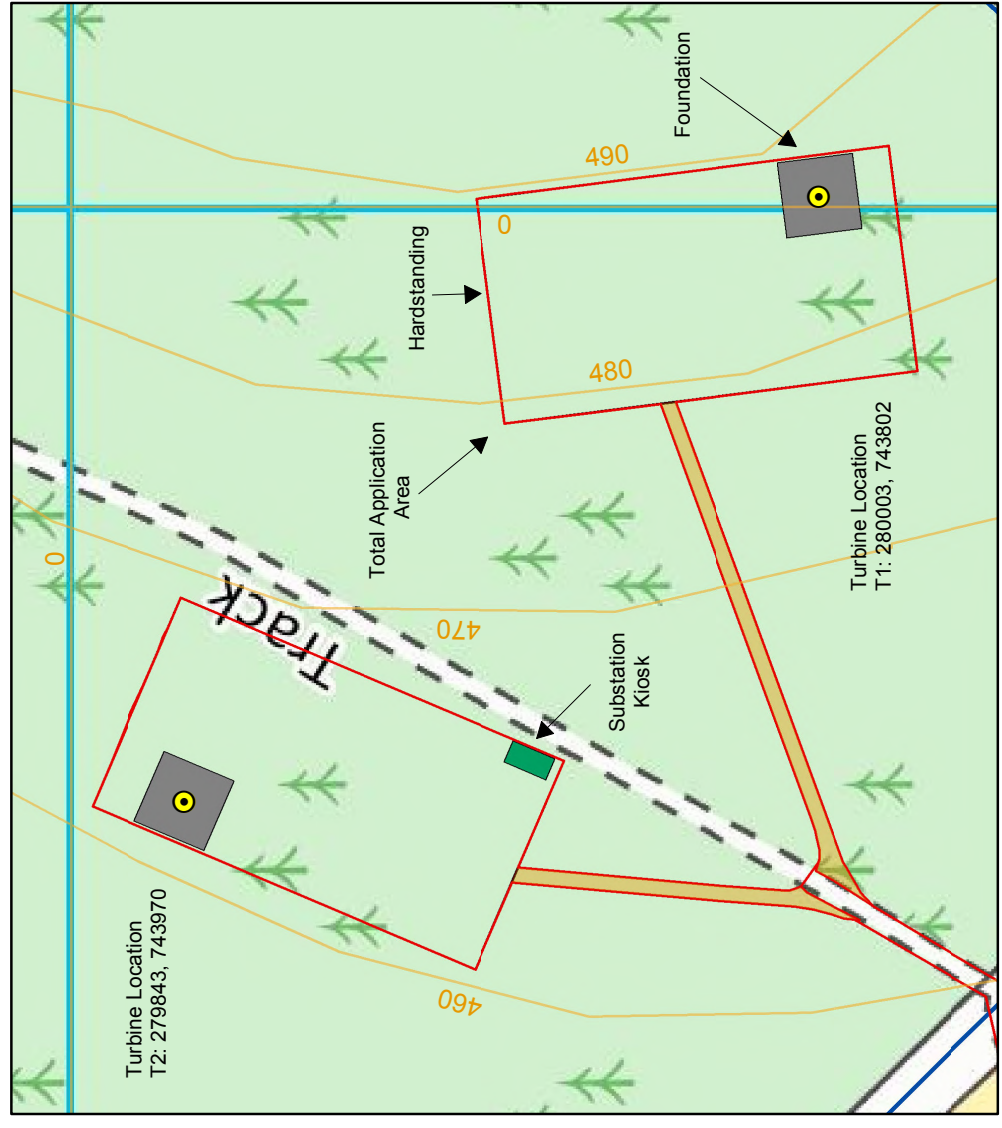
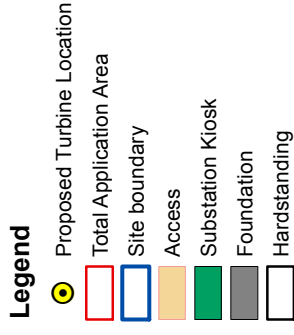
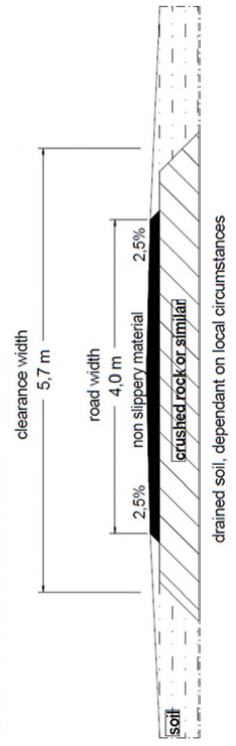
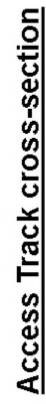
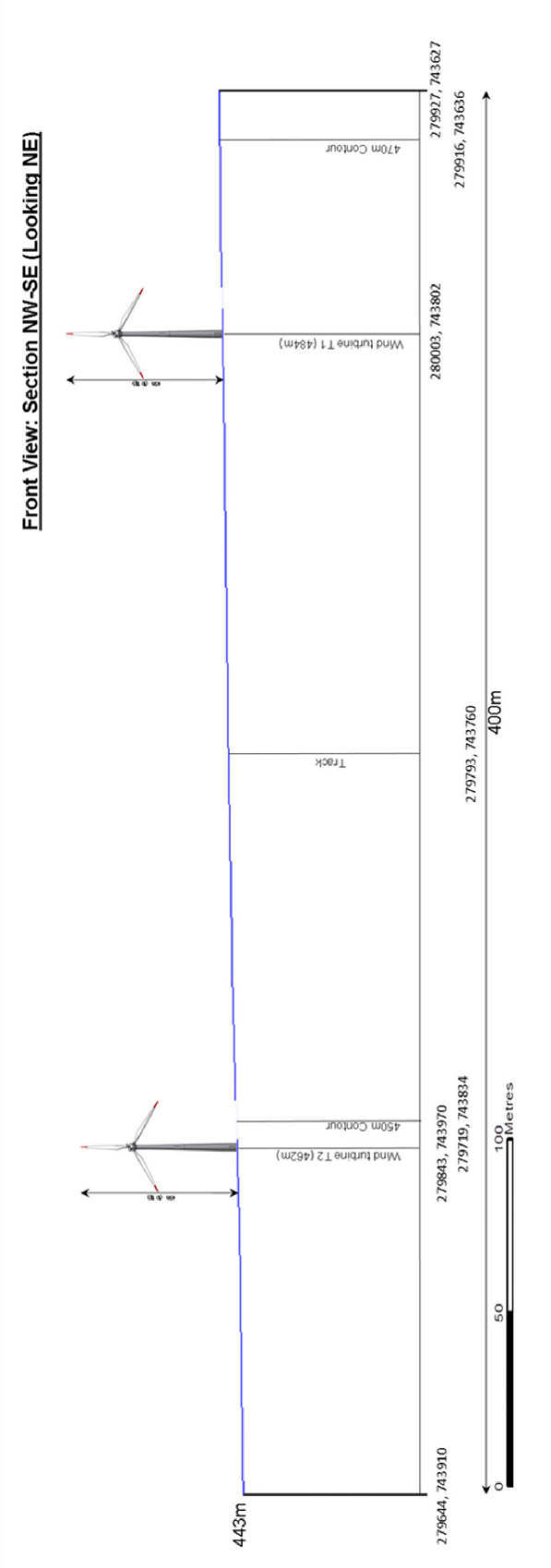
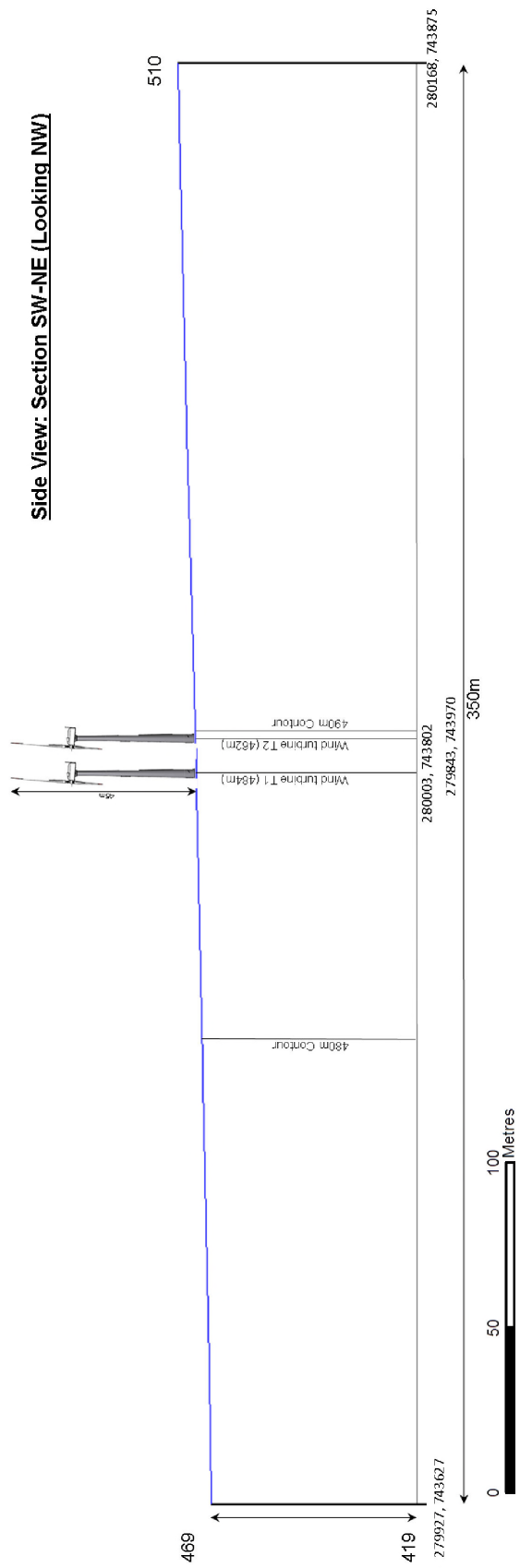
Figure 2



Date: 30/09/13

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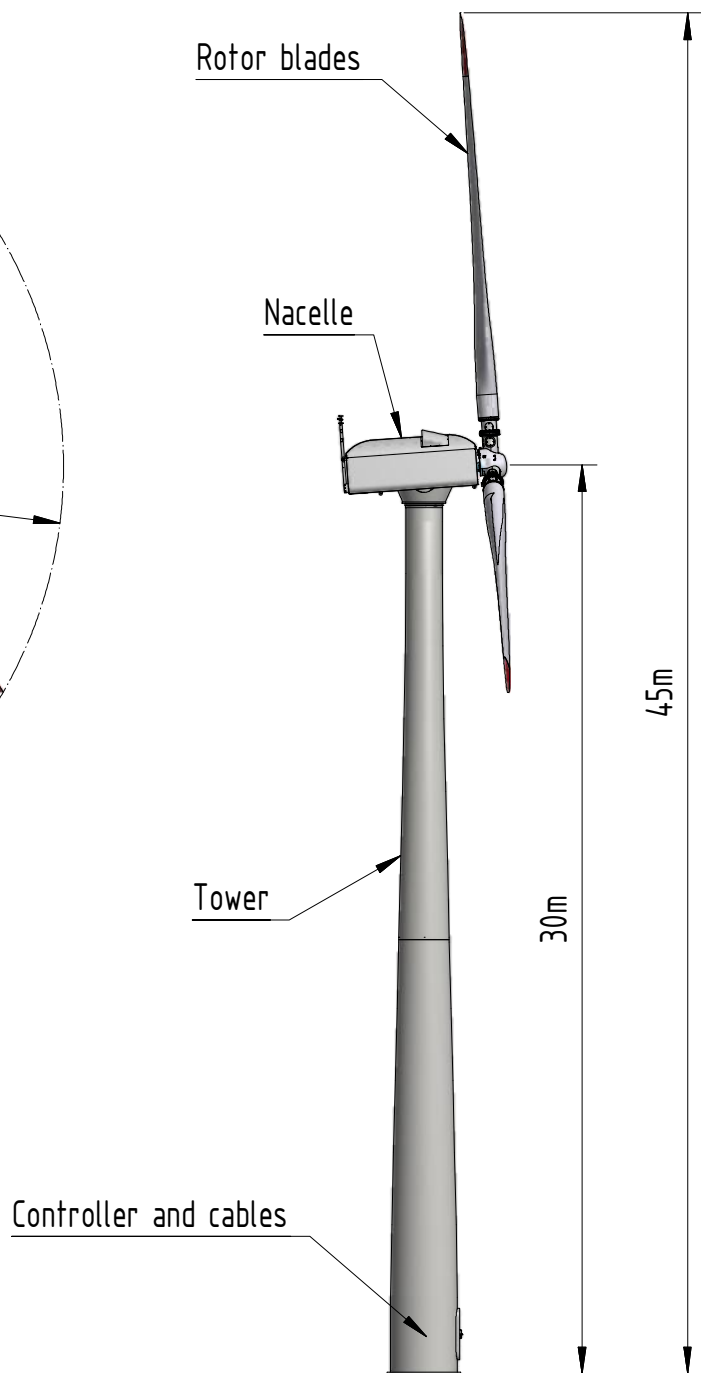
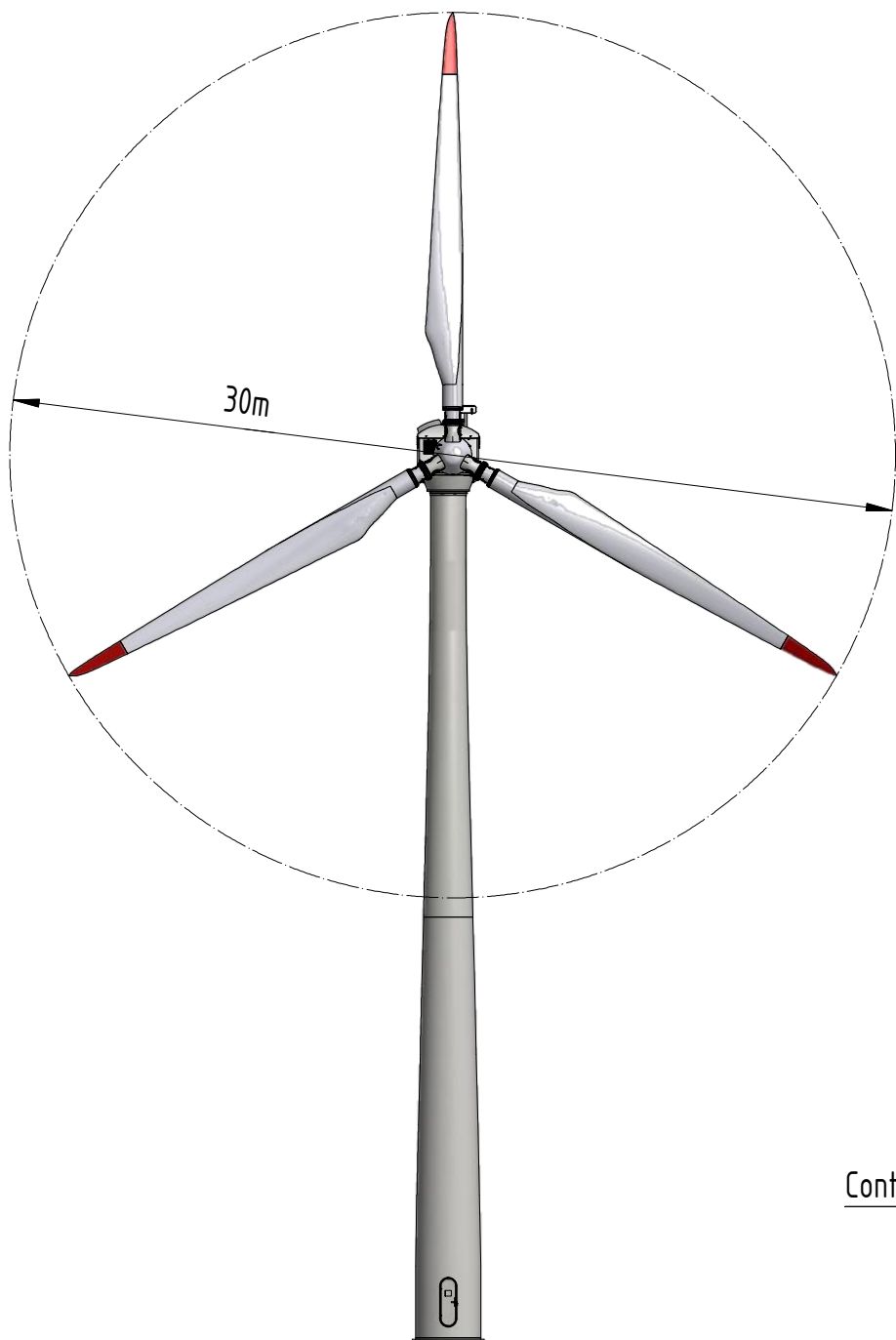
Checked by: MJ

Site Layout




<div><div>RealiseRenewables</div><div>Realise your renewable energy potential</div></div>	<p>Notes:</p> <p>1. 1:2000 block plan of proposed turbine layout.</p> <p>2. Side and front view cross sections of proposed turbine location.</p>		<p>Bolfracks Wind Turbine</p>		<p>Revision No.</p> <p>1</p>		<p>Site Layout</p>	
			<p>0 75 150</p> <p> m</p> <p>A3 scale @ - 1:2,000</p>		<p>Figure 2</p>			
					<p>Sheet No.</p> <p>1</p>		<p>Date: 30/09/13</p>	
					<p>Drawn By: SC</p>		<p>Checked by: MJ</p>	


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SCALE
1m

WTN 250					Weight:	-	Scale:	1:250
					According to the law we reserve the right of proerty of the present drawing, which cannot be printed or transmitted without our written authorization.			
	Name: WTN 250/30 - Tubular tower 30m				Drawing No.: 250-00-30-300		Format: A3	
	Rev.: 0	Date: 26.03.2013	Name: Braukmann	Production tolerance: DIN ISO 2768-T1 m (mittel)	Status:	Freigegeben		Page: 1
204	Drawn:	Check:						of: 2



WTN 250	<div>WindTechnik Nord</div>				Weight:	-	Scale:	1:150
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	Name: WTN 250/30 - Tubular tower 30m				Drawing No.: 250-00-30-300		Format: A3	
	Rev.: 0	Date: 26.03.2013	Name: Braukmann	Production tolerance: DIN ISO 2768-T1 m (mittel)	Status:	Freigegeben		Page: 2
205		Check:					of:	2

